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ABSTRACT OF

The Goulstonian Lectures

ON

CERTAIN ACUTE INFECTIVE OR TOXIC CONDITIONS OF THE NERVOUS SYSTEM.

Delivered before the Royal College of Physicians of London

BY E. FARQUHAR BUZZARD, M.D. OXON., F.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, QUEEN-SQUARE, TO THE ROYAL FREE HOSPITAL, AND TO THE BELGRAVE HOSPITAL FOR CHILDREN.

LECTURE I.

Delivered on March 5th.

MR. PRESIDENT AND GENTLEMEN,—If it were not a duty based upon tradition it would still be a spontaneous wish of my own that the opening words of these lectures should frankly express my appreciation of the honour which you have paid me in placing them in my hands. An honour in itself, it gains enhancement from a reference to the many distinguished names of those who have in the past filled, and worthily filled, the position in which I find myself to-day. A sense of diffidence must necessarily be one's lot in such circumstances, but encouragement and stimulation may be derived from the reflection that few, if any, of my predecessors have failed to justify their early distinction by their later work. An apology is owing for the somewhat vague title I have given to my subject and this can be best offered in the shape of a short explanation. There has never been in my mind any idea of embracing within these lectures the discussion of all the numerous and interesting questions concerning acute infective or toxic conditions of the nervous system. On the contrary, it has been my desire to confine my attention to a comparatively small group of diseases and to a few important points which arise in connexion with them.

The leading characteristic of the group which I have chosen is easily expressed in two words—acute paralysis; to be more precise, I wish to deal with the class of case in which a rapidly developed motor paralysis, involving the whole, or nearly the whole, of the voluntary musculature, is the important and conspicuous feature. To be included in this category a case must be acute, requiring only a few hours or a few days for its development, and it must present good grounds for the belief that it is of infective or toxic origin, certainty in this regard being often impossible in the incomplete state of our bacteriological knowledge. If we search for cases answering to this description we shall find them classified under the following titles: (1) acute anterior poliomyelitis; (2) Landry's paralysis; (3) acute toxic polyneuritis; and (4) acute ascending or diffuse or disseminated myelitis. Some of these titles have synonymous alternatives, and some, as we shall see later, are open to objection; but they are familiar terms, conveying some meaning to most of us, and will suffice for the purpose of rough classification. Doubtless you will agree that the differential diagnosis between these four conditions may in any particular patient form one of the most difficult of bedside problems, and that the questions of their exact pathological basis, of their pathogenesis, of their relation to one another and to other morbid conditions, of their specificity or non-specificity are all worthy of detailed debate, even if they are not all ripe for successful settlement. The only excuse I can offer for attempting this task is that I have had the opportunity of observing clinically and examining anatomically a considerable number of cases which fall within this category.

The opportunities for clinical observation and accession to notes I owe in many instances to the generosity of my colleagues at the National Hospital for the Paralysed and Epileptic and the Royal Free Hospital, to whom I desire to acknowledge my gratitude. For ready help and advice in the preparation of specimens I am deeply indebted to Dr. Gordon M. Holmes and Dr. T. Grainger Stewart of the former hospital. Dr. Helen Chambers and Dr. Evelyn Woodward have also spared no trouble in providing me with material from the pathological laboratory of the Royal Free Hospital for a special investigation.

For the better understanding of what is to follow and for the purpose of avoiding the unnecessary repetition of elaborate descriptions I shall employ the time at my disposal to day in laying before you as briefly as I can the results of laboratory investigations on the reaction of various elements of the nervous system to toxic agents. In doing this I shall confine myself almost entirely to the motor structures on account of their special relation to the questions at issue, but shall include for the same reason voluntary muscle which is inseparably and importantly connected with those structures.

MOTOR CELLS.

The large Betz cells of the motor cortex, the anterior horn cells of the spinal cord, the cells of various motor cranial nerves, such as the hypoglossal and the facial, as well as those of the nucleus ambiguus, belong to the same "stichochrome" class, and have been specially studied by many observers with reference to their modes of reaction to toxins. The method of Nissl has been the one almost uniformly employed and the results obtained by this method have practically become the standards of cell change.

There are important points to be remembered in connexion with the alterations in cellular structure. In the first place cell changes which are produced by toxins cannot be certainly distinguished from those which are the result of other influences. The term "axonal reaction" is applied to those changes which take place in the cell body soon after its axis-cylinder process has been divided or torn or subjected to some destructive or degenerative influence, and indicates a cellular condition which closely resembles that produced by toxic agents. In estimating cell changes, therefore, in toxic conditions it has always to be carefully considered how far they are dependent on the direct action of the toxin on the cells themselves and how far they are representative of "axonal reaction," due to the destructive or degenerative influence of the toxin on their axis-cylinder processes. It must, however, be conceded that very marked and even fatal cell changes can be produced by toxins independent of axonal reaction. A conspicuous example of this is seen in acute diphtheritic toxæmia in cases which have died from cardiac failure during the early stage of the disease. Bolton has recorded in this condition acute degenerative changes in the cells of the nucleus ambiguus associated with no demonstrable alteration in the vagus nerve.

In the second place the changes produced in the microscopical appearance of nerve cells under the influence of high temperatures and of artificial anæmia have been extensively studied by Sarbo, Mott, Ballet and Dutil, Goldscheider and Flatau, Marinesco, and others. The cell appearances, under these two conditions, are often not widely dissimilar at certain stages, and sometimes not unlike those produced by toxic agents. The frequent association of toxæmia with pyrexia necessitates, therefore, critical consideration of the relative potency to be attached to those two factors in the causation of structural changes in the nerve cell.

Finally, it is stated by F. Pick, van Gehuchten, Gordon Holmes, and others that unusual cellular activity is also associated with modifications of the histological cell picture which resemble some of those I am about to describe in toxic conditions.

Viewed in the light of the Nissl method, which depends for its usefulness upon the affinity displayed by certain parts of the cell for the basic aniline dyes, the large multipolar motor cells of the central nervous system may be regarded, arbitrarily, as composed of two substances. The one substance is stained by the basic dye, is basophile, and may be called chromatic; it is found in the nucleolus, the nuclear membrane, and in certain masses which lie within the protoplasm of the cell body and its dendrites and which have been variously termed Nissl bodies, chromatin granules, or tigroid. (Figs. 1 and 2.) The other substance is unstained by the Nissl method on account of its non-basophile or acidophile properties and may be called achromatic. According to the researches of Held, Ramon y Cajal, and others, who have employed special methods for its detection and study, this achromatic substance is found throughout the cell body and axis-cylinder process in the form of a fine reticulated granular network, in the meshes

of which are seen the chromatin granules. A substance of somewhat similar reaction is also found in the more central parts of the nuclear body and in the very centre of the nucleolus. This achromatic material is probably the essential part of the cell protoplasm. To complete the picture of a normal cell of this class stained by the Nissl method it has only to be remembered that its shape is polygonal, with concave borders between the bases of the processes; that the nucleus is round, generally central in position, with a centrally placed nucleolus; and that the chromatin granules in the cell body are variable in size and shape but are usually arranged along pericentric lines roughly parallel with the cell borders. Lastly, it must not be forgotten that a mass of greenish-yellow pigment is normally present in many cells, certainly after 20 years of age.

ACUTE TOXIC CELL CHANGES.

Under this heading we have to deal with a variety of appearances and it is difficult to say for certain in what way they are related one to another.

Early types.—1. The cell has hardly altered in shape but the concave borders have become straight or slightly convex; the nucleus is central and perhaps a little swollen; the chromatin granules in the cell body are breaking up into finer particles either in patches or, more commonly, around the nucleus (perinuclear chromatolysis), or near the periphery (peripheral chromatolysis). (Fig. 3.) 2. The cell is swollen moderately, the nucleus is central, and rather enlarged. The whole cell body is stained somewhat deeply probably owing to the fact that the chromatin bodies have broken up into fine particles and that the achromatic substance has become more basophile. The contrast between the chromatic and achromatic parts is consequently much less marked and the staining of the achromatic substance renders the cell processes more distinct and more easily traced away from the cell. (Figs. 4 and 5.)

Moderate type.—This type may probably be secondary to either of the early types. (Fig. 6.) The cell is round and swollen; the nucleus is displaced from the centre, is often less spherical, more oval or reniform in shape, and contains an excentric nucleolus. There are no longer any chromatin granules in the cell body or only a few remnants may be seen on the periphery, in the bases of the dendrites, or, in other cases, close to the nucleus (complete or almost complete chromatolysis). The cell protoplasm takes on a pale homogeneous or faintly granular stain, which, if the process continues, becomes less and less evident. Up to this stage it is practically certain that recovery may take place under favourable conditions.

Advanced types.—1. The cell is globular in shape with few or no distinct processes, the nucleus, with wrinkled or distorted membrane, has appeared on the surface and is on the point of being extruded or is actually outside the cell; the cell body presents a pale homogeneous and sometimes rather vitreous appearance with no trace of chromatin granules. (Fig. 7.) 2. More rarely the cell has retained something of its original shape with an irregular outline, but the whole cytoplasm, together with the nucleus, is of a uniform lustreless colour, the nucleolus alone standing out on account of its somewhat deeper hue. The first of these two advanced types must be regarded as fatal as soon as the nucleus and cell body are parted. The second probably represents a fatal coagulative change which in many respects resembles that produced by exposing cells to a high temperature.

In association with the moderate and advanced types of alteration it is not by any means unusual to find vacuoles in the cell protoplasm and, more rarely, fissures have also been described. Cell conditions such as I have briefly put before you have been recorded in experimental intoxication with various poisons.

In human pathology analogous conditions have been found in alcoholic, diphtheritic, and other forms of poisoning. Recently Poynton and Gordon Holmes have described widespread changes of the same character in rheumatic chorea.

From these facts concerning acute toxic cell change we can deduce two important points. In the first place, the histological appearances are not absolutely distinct from those produced by other influences. In the second place, no poison can be said to evoke an anatomical cell change which is different from that evoked by other poisons. In other words, there is no specificity in the microscopical evidence of toxic influence.

The methods of Ramon y Cajal, of Donaggio, and others for the purpose of bringing out the neuro-fibrils have been successful in the hands of their inventors and of Marinesco, Gentés and Bellot, and others, in showing that these fibrils undergo marked changes in toxic and other conditions, but the consensus of opinion at the present time favours the view that they are only present when the Nissl changes can also be evoked and are in no way more specific.

ACUTE TOXIC CHANGES IN NERVE FIBRES.

The Marchi method (or the "Busch" modification) is that most commonly employed for the purpose of demonstrating early changes in the nerve fibre and its myelin sheath. In acute toxic states I believe that there are two different conditions to be met with: 1. The myelin sheath undergoes a change which is practically indistinguishable from the Wallerian degeneration of a nerve fibre separated from its nutritional centre. For example, I may cite the case of a man dying from acute pneumonia who at the time of his being taken ill was undoubtedly suffering from the very earliest stage of alcoholic neuritis. In the peripheral parts of his anterior crural and external popliteal nerves I found early Marchi degeneration. Most fibres were normal, others showed a faint brown tint, generally more marked near a node, and others had become more deeply stainable from node to node in their entire breadth. This condition was not secondary to cell change since the ganglion cells were nearly all normal, or if changed only very slightly so, but must be regarded as a degenerative reaction on the part of the myelin sheath to a true toxic change of the axis cylinder. In more advanced stages of the same process the altered myelin breaks up into large rounded masses which are taken up by various cells and ultimately absorbed. This represents the *Wallerian fatty degeneration* of toxic origin and may be seen in the central nervous system as well as the peripheral nerves, although it is more common in the latter. I believe that when this occurs there is always some interference with the function of the fibre, although I do not deny that function may be regained before the myelin sheath is completely restored to its normal condition. 2. Another result of acute toxic states is the appearance in the central nervous system or the peripheral nerves of more or less numerous fine rounded drops of fat or material which is at any rate stained by the Marchi method. These are common in the white matter of the lateral and anterior columns, of the posterior columns, especially in the column of Goll, and are more frequently seen in the posterior than in the anterior roots. If examined under a high power, either in transverse or longitudinal sections, they are seen to lie mostly within the myelin sheaths but are seldom large enough to fill more than a half of the transverse diameter of any particular fibre. They appear singly or in short rows of two, three, or four together and vary in their depth of staining. When these are present in the white columns it is usual to find still finer fatty particles scattered in the grey matter of the anterior horns, and occasionally in that of the cerebral cortex. This condition I have often observed in toxic states of all kinds, and a good example

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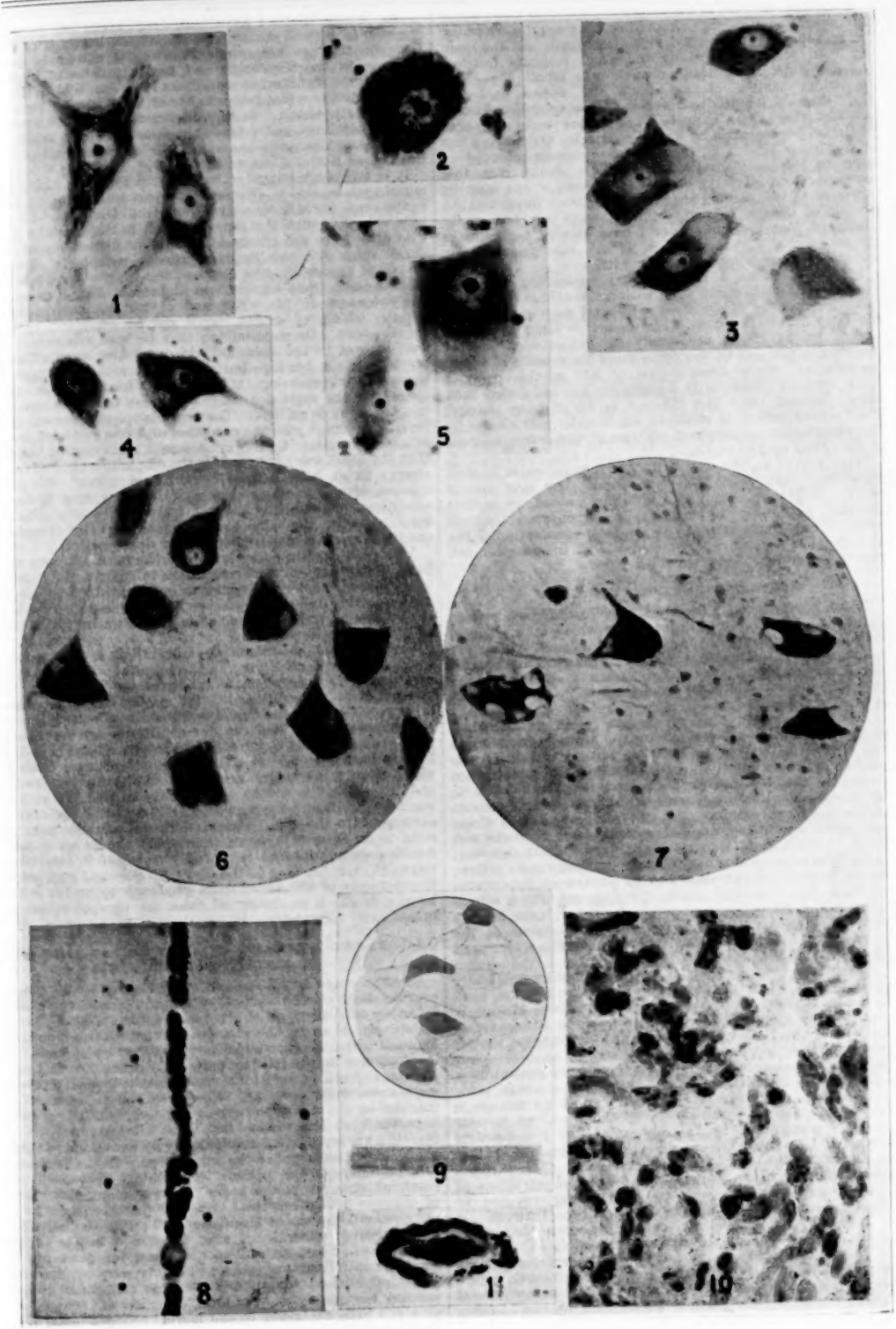
DESCRIPTIONS OF ILLUSTRATIONS ON PAGE 707.

Fig. 1.—Two normal "stichochrome" cells from the hypoglossal nucleus.
Fig. 2.—A normal Betz cell from the motor cortex.
Fig. 3.—Early type of toxic change (1). Perinuclear chromatolysis. The pale areas in three cells are produced by pigment. Anterior horn cells.
Fig. 4.—Early type of toxic change (2). Diffuse staining. Anterior horn cells.
Fig. 5.—Early type of toxic change (2). Diffuse staining. Betz cell.
Fig. 6.—Moderate type of toxic change. Anterior horn cells.
Fig. 7.—Advanced type of cells in anterior horn cells, probably due partly to toxic and partly to "axonal reaction" influence.
Fig. 8.—Longitudinal section from spinal cord stained by Busch method showing a single fibre undergoing toxic Wallerian degeneration and numerous smaller droplets of fat representing the diffuse fatty change. From the case of puerperal septicæmia mentioned in the text.
Fig. 9.—Fatty change in muscle stained by Busch method. Transverse and longitudinal sections.
Fig. 10.—Sections from cardiac muscle in a case of acute ptomaine poisoning dying in 36 hours. Extensive fatty change, which was also present in the diaphragm and to a less extent in the skeletal muscles. Stained by Busch method.
Fig. 11.—Transverse section of small vessel in the cortex cerebri, showing marked fatty change in its walls. Stained by Busch method.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is afforded by the case of a woman who died after three weeks of puerperal septicæmia culminating in general peritonitis. The necropsy was made six hours after death and the brain and cord were hardened by the usual formalin method. The above described fatty change was found thoughout the white matter of the brain and spinal cord and Fig. 8 shows a longitudinal section of the spinal cord taken at a spot where there happens to be a fibre undergoing true Wallerian degeneration by way of contrast. Only a very few of the latter type were seen and they may be regarded as more or less accidental. I have little doubt that this particular form of fatty change in nervous tissue may be increased by lengthening the interval between death and the fixation of tissues. Whether this is so or not I am quite convinced that the appearance I have alluded to indicates an ante-mortem change, or is at any rate promoted by chemical processes occurring during life.

The view which I have adopted concerning this production of droplets which stain with osmic acid is that it is a fatty degeneration of the myelin, in some ways analogous to the fatty change found in other organs in toxic conditions and is by no means necessarily an evidence of loss of function on the part of the nerve fibres the sheaths of which are affected. Some stress should be laid on this point, I think, because a sufficiently distinct line has not always been drawn between these two different forms of fatty change. Their differentiation is rendered much easier and clearer by the examination of longitudinal than of transverse sections of the spinal cord or nerves.

With regard to the axis cylinders themselves it is well recognised that under toxic influences they may appear swollen and more deeply and diffusely stained by various reagents, noticeably by hæmatoxylin, in ordinary logwood or van Gieson preparations. An irregular vacuolation of the axis cylinder similar to the vacuolation of the ganglion cell protoplasm has also been described.

ACUTE TOXIC CHANGES IN MUSCLE.

There has been much investigation into and much written about the various forms of degeneration which take place in muscles in acute infective and toxic conditions, but we are concerned here only with the early histological alterations. These may be regarded as of two varieties, either of which may be present alone or combined with the other in striated muscles.

The first is a condition which can be recognised when sections of muscle are stained by the ordinary logwood or van Gieson methods. It has been termed diffuse hyperplasia and is characterised by the fact that the muscle fibre swells, so that its transverse diameter is increased and its longitudinal outline often rendered sinuous. In transverse section it appears more rounded and less polygonal in shape and when seen in longitudinal sections it has generally lost much of its distinct transverse and longitudinal striation. It tends to take a somewhat different, generally more yellow, colour in eosin preparations and to present an appearance which is best described as slightly vitreous. These alterations in the sarcoplasm are often associated, even in very early stages, with a swelling and proliferation of the sarcolemma nuclei and with the presence of an increased granularity of the plasma.

The second type of change is one which is microscopically evident only when methods for detecting fat are used in the preparation of the tissue sections. Fatty change is probably the most suitable name to apply to it because it has been shown both by Rindfleisch and by Dudgeon that it is not due to an increase of fatty content of the muscles but to a chemical change by which fat, previously present in a saponic form, becomes demonstrable by the osmic acid, Scharlach red, or Sudan III. methods. The fatty change is first apparent around the nuclei of the fibre but is soon rendered conspicuous by the appearance of fine droplets arranged in rows between the fibrils, producing at first an intensification of the normal striation. (Fig. 9.) As the droplets increase in size the transverse striation of the fibre tends to become less easily perceived, but in other respects the fibre may retain its normal features. It is probable that this fatty change is, like the hyperplasia, quite remediable under favourable conditions. As I have said before, the fatty and hyperplasic changes may be associated in one fibre, and, following the rule of all toxic changes, it is usual to find many normal fibres lying among those which are affected by one or other or both morbid processes.

The change which I have now described is not very uncommon in a great variety of toxic states, but it is due to Dudgeon that we are cognisant with its extremely early presence in the diaphragm and heart in cases of experimental acute diphtheritic toxæmia. Mott has told us in his Croonian lectures that fatty change of the heart and striated muscles is a striking feature in animals poisoned by the bacillus botulinus, and I found the same condition in a fatal case of ptomaine poisoning which was under my care at the Royal Free Hospital last summer. (Fig. 10.)

It is still more important to note that this fatty change of muscle can be, and is, frequently present without alterations in the nerve fibres as shown by Bolton and Dudgeon. I have been able to confirm the same principle in the case of a man who died from the effects of a fracture dislocation of the dorsal spine with resulting compression paraplegia. In the course of examining him between the time of his accident and his death I was surprised to find some slight paresis of the extensors of his wrist and of his supinator longus muscle, which, of course, could not be explained by the spinal lesion. On ascertaining that he was a potman and that he was in the habit of taking the first liquid refreshment from the bar-taps I attributed the muscular weakness to early lead poisoning. After death I found intense fatty change in the supinator longus, whereas there was none in the flexor brevis pollicis. The musculo-spiral nerve was free from any change with the exception of a few scattered drops of altered myelin. In the same case it is interesting to note that the heart was normal while the diaphragm showed fatty change in at least 80 per cent. of its fibres. We may assume, with a tolerable degree of certainty, that in toxic conditions muscles may undergo fatty change of a primary kind, although the same change is observed as a secondary condition in cases of peripheral nerve degeneration.

I propose to leave for later consideration the very important question of vascular change in toxic and infective conditions of the nervous system, a question which is fraught with all the difficulties surrounding the meaning of the simple word "inflammation"; at this moment I will only refer to one small point.

Under normal conditions the adventitial or perivascular sheaths of vessels ramifying in the substance of the brain or cord may contain droplets of fat or granules of pigment. In all sorts of toxic conditions this fat may be largely increased in amount so that the vessel walls stain a deep black in Marchi preparations and the fine capillaries can be seen in places to be outlined by minute black fatty particles (Fig. 11). I must hasten to add that I am not referring to cases in which there is a general breakdown of the myelin sheaths and in which the fat so produced is carried by various wandering cells into the perivascular lymphatics and thence absorbed into the blood stream. The appearance which I refer to is present in cases in which there is no general myelin degeneration and is probably explained in one of two ways: (1) the fat may be the result of chemical changes in the elements of the vessel walls produced by toxins in the blood; or (2) it is abstracted from the nervous substance immediately surrounding the vessels.

CHANGES FOUND IN CASES OF TOXÆMIA NOT ASSOCIATED WITH MARKED NERVOUS PHENOMENA.

Some time ago it appeared to me necessary for the proper consideration of the pathology of the acute toxic and infective conditions of the nervous system that I should satisfy myself as to the changes present in cases of fatal toxæmia which are not commonly classified as nervous. It is of course impossible to draw a distinct line between nervous and non-nervous toxic states in that the symptoms of most acute toxic cases are largely referred to disorders of function on the part of the nervous system, but it is of some importance to know how far these clinical disorders of function are represented anatomically by variations in structure demonstrable under the microscope. Is the increased exhaustibility of the patient in voluntary movement the result of changes in the upper or lower motor neurons or of changes in the muscles? Are the disturbed actions of the more vital organs of circulation and respiration referable to changes of central origin or to change in the organs themselves? These and other questions, too numerous to specify, naturally occur to one. For my purpose, however, an entirely different question is the most momentous. How far are the paralytic symptoms in cases of acute toxic paralysis to be explained by the morbid changes found after death, or how far are these morbid changes common to other

toxic states in which paralysis is not a part of the symptomatology? With the object specified in view a number of cases of general toxæmia were examined in the following manner: the motor cortex by the Nissl, van Gieson, and Busch methods; parts of the pons, medulla, and spinal cord by the same methods; and portions of the heart, diaphragm, and vastus internus muscles, together with their intramuscular nerves by the van Gieson, Busch, and Scharlach red methods. The cases included (1) a case of ptomaine poisoning fatal in 33 hours, with a temperature rising from 99·6° to 107° F. just before death; (2) a case of puerperal septicæmia, culminating in general peritonitis, of three weeks' duration with an irregular temperature of the septic type; (3) a case of erysipelas of the face complicated by myocardial degeneration and granular kidney in which the erysipelas was present for a week with a temperature varying between 100° and 102·2°; (4) a case of extensive surface burns with septicæmia and fatal hæmorrhage from a duodenal ulcer (temperature 102° to 103° during one week); (5) two cases of acute infective enteritis, one fatal in two or three days and the other improving temporarily with a fatal relapse at the end of 17 days; (6) two cases of acute periosteitis with general pyæmia, one fatal at the end of 20 days, with a temperature varying between 99° and 104°, and the other fatal in three days with a temperature of from 101° to 102°; (7) a case of acute pulmonary tuberculosis dying after a short illness in which the symptoms were only prominent during the last 19 days (temperature 99° to 102°); (8) a case of acute lymphatic leukæmia of probably three months' duration, but with a very acute termination (temperature during the last four days 102° to 104°); (9) a case of measles, the patient dying from broncho-pneumonia in a week (temperature 101° to 104°, rising to 107° just before death); (10) a case of diphtheria, death resulting from broncho-pneumonia after three days' illness (temperature 100° to 102°); and (11) a case of acute diabetes in a man, aged 23 years, the symptoms persisting for three weeks and the patient dying comatose (post mortem there were found large white kidneys and ulceration of the colon). In addition to these cases I have examined on the same lines two cases of pneumonia with unsuspected meningitis.

The intense fatty change in the heart and diaphragm and less marked change in the vastus internus in the acute ptomaine poisoning case I have already referred to, and I have only to add that the Betz cells of the motor cortex showed what I have described as the second early type of change—namely, slight general swelling of the cell with somewhat diffuse staining of the chromatic and achromatic substance. The cells of the medulla and cord showed no change but the myelin of the latter presented diffuse fatty change of the non-Wallerian type. In the case of erysipelas the nervous tissue showed no changes. The cortical vessels were fatty and not only the heart but the diaphragm and vastus internus were full of fine fatty particles, whether the result of the erysipelas or associated with the myocardial degeneration and granular kidneys is not quite clear. In both cases of staphylococcic pyæmia there were early changes in the Betz cells but no alteration of the bulbar or spinal cells, slight diffuse fatty degeneration of the myelin and of the cortical vessels, but no evidence of disease in the muscles except in one case where the heart and diaphragm showed fatty change in the neighbourhood of a purulent pericarditis. It is worthy of note that in neither of two cases of acute lobar pneumonia was meningitis suspected during life, although it was apparent to the naked eye all over the cord and brain in the one and very evident on microscopical examination in the other. These cases of meningitis were the only instances in which definite changes were found in the cells of the cord and medulla. In one case of pneumonia there were slight fatty changes in the vastus internus associated with a normal heart and diaphragm. On the other hand, extensive fatty degeneration of the diaphragm was present in the case of measles and broncho-pneumonia and in the case of acute pulmonary tuberculosis, although the heart and vastus internus were free from fat in both instances. In one acute case of infective enteritis the cells of the cortex were very little changed, although the cell bodies appeared small in proportion to the size of the nuclei. In the other case of longer duration the nuclei were swollen and the cytoplasm showed some chromatolysis. In neither were there fatty changes in the central nervous system or muscles.

It is not right to attach much importance to such a limited number of cases, but it may be noted that in eight out of 13 cases very early changes were observed in the Betz cells of the cortex, although no changes were found in the cells of the medulla or cord. This seems to point to a greater susceptibility on the part of the more highly developed cells to toxic influences and is in accordance with the clinical picture of easily exhausted voluntary effort frequently seen in toxæmic states. The absence of changes in the nuclei of the medulla makes one wonder whether we are not inclined to attribute disturbances of respiration and circulation too often to bulbar intoxication and whether it is not some higher respiratory and cardiac centre which is sometimes to blame. While on the one hand diffuse fatty myelin change was common in the series, that form of degeneration which resembles the Wallerian variety was only seen, and that scantily, in the case of septicæmia of three weeks' duration. The importance of this result lies in the warning it provides that we should not be too ready to regard this diffuse type of myelin change as explanatory of marked functional disturbance in the form of paralysis or loss of sensation.

With regard to muscular fatty changes this investigation serves to show that the diaphragm is even more liable to undergo this form of degeneration than the heart and that both are much more commonly affected than the vastus internus which was taken as a type of ordinary skeletal muscle.

Finally, I must draw your attention to the fact that in no single instance did there appear to be any evidence of perivascular cellular infiltration or neuroglial proliferation. Indeed, the only vascular phenomenon beyond engorgement of vessels, which was certainly marked in many cases, was the occurrence of increased amounts of fat in the vessel walls or sheaths, especially in those of the cortex cerebri.

THE PATHS BY WHICH BACTERIA OR THEIR TOXINS MAY REACH THE CENTRAL NERVOUS SYSTEM AND THEIR MEANS OF DISSEMINATION WITHIN IT.

When we come to inquire into the pathogenesis of the acute toxic paralyses it will be necessary to take into consideration the paths by which the central nervous system can be brought within the sphere of action of bacteria and their toxins and further to recognise, as far as we can, along what lines the noxious influences can spread within the system. Excluding direct invasion from neighbouring diseased tissues there are obviously two definite channels about which it is advisable to say a few words. These are: (1) the blood, and (2) the lymph.

1. *The blood supply of the central nervous system.*—This is arranged, as one would expect, so that the richest vascularisation is associated with the presence of the most active elements or ganglion cells, whereas the more passive conducting paths are content with a somewhat poorer portion. In the spinal cord the largest artery is the anterior spinal which supplies the greater part of the cellular grey matter and which is of larger calibre in the cervical and lumbar enlargement, where the cells are numerous, than in the dorsal region where they are relatively few in number. The smaller pial vessels supply the white columns but do not provide such a rich capillary network as is found in the grey matter. These arteries derive their supply from the anterior and posterior spinal arteries with reinforcement from each of the spinal root vessels. The great length of the segments in the middle third of the dorsal region and the lack of large reinforcing root arteries probably render that particular portion of the cord less vascular than any other, and it is here that true vascular thrombosis is most often met with. It appears from the injection researches of Kadyi that there is no definite anastomosis between the area supplied by the anterior spinal artery and that supplied by the pial vessels and that there is a zone in the neighbouring borders of the white and grey matter which is partly vascularised by the one and partly by the others. It would seem therefore that the grey matter of the cord with its rich capillary network, and especially that of the cervical and lumbo-sacral enlargements, is more lavishly exposed to circulating toxins than the white matter. The occurrence of emboli in the cord in human pathology is a rare event owing to the somewhat tortuous route and small calibre of the arteries, but Leyden in two cases of ulcerative endocarditis found purulent foci scattered indiscriminately through the white and grey matter of the cord. Cassirer found metastatic abscesses more frequently in the grey than

in the white substance. Experimentally embolic softening in both grey and white matter has been produced by injecting fine particles into the lumbar arteries by Lamy and Rothmann. Singer injecting the vertebral artery produced infarcts in the posterior columns and horn of the corresponding side of the cervical cord. I shall have to make further reference to experimental embolism of the cord, especially in relation to Hoche's work, when discussing the nature of acute poliomyelitis. With regard to the brain the same generous blood-supply is provided by means of a rich capillary network for the grey matter both of the cortex and of the basal ganglia, the white matter, on the other hand, being comparatively poorly off. In the brain stem the sharp line between white and grey matter is not nearly so distinct as it is in the case of the cerebral hemispheres or spinal cord, a fact which can be ascertained from a glance at any Weigert-Pal section of the medulla or pons, but nevertheless the parts with most cells are generally best provided with vessels. Embolism of the cerebral arteries is sufficiently common to require no comment here. Two facts stand out clearly from this short review of the general principles of blood circulation in the central nervous system: (1) toxins in solution in the general circulation will be brought into closer relationship with the grey than the white matter; and (2) solid particles capable of forming emboli are almost invariably carried into the larger cerebral arteries and very rarely into the cord. When embolic infarcts do occur in the cord they are found both in white and grey matter, perhaps with a little preference for the latter owing to the larger calibre of the anterior spinal artery.

2. *Lymphatics of the central nervous system.*—There is a certain amount which is known and a great deal which is speculative about the lymphatic supply of the brain and cord and anyone who wishes to inform himself about the subject had better for his peace of mind avoid reading more than one authoritative statement on the matter.

[After describing what is known about the lymphatic system of the spinal cord Dr. Buzzard proceeded:]

The connexion of the spinal lymphatics with other lymphatics, and more especially with those of the peripheral nerves, has next to be examined. Our knowledge on this point is derived largely from observations in human and experimental pathology. D'Abundo injected china ink into the posterior columns of dogs and found that the granules tended to spread up the cord and towards the central grey matter. They did not traverse the posterior horns into the ventro-lateral columns nor did they find an exit into the posterior roots. After injection into the central grey matter the ink granules spread more generally into the anterior, lateral, and posterior columns, but again chiefly in an upward direction. There was in either case a general tendency on the part of the deposit to find its way into the perivascular sheaths. Guillain more or less confirmed the results obtained by D'Abundo from experiments conducted on similar lines. He came to the conclusion that there were perivascular lymph sheaths and lymph spaces in the tissue, that the circulation was ascending, that the spaces in the posterior columns were independent of those in the antero-lateral, and, finally, that the central canal takes on the functions of a lymph channel. Sicard, on the contrary, did not find that granules injected into the posterior columns were confined to that region but tended to spread in all the columns and to reach the perivascular sheaths of the subpial and subependymal vessels. The same author found no spread of the ink when injected into the nerve roots; when injected into the cerebro-spinal fluid it was quickly disseminated throughout that liquid and gained ultimately the lymphatics of the body.

More important are the investigations which have been made on the mode of infecting the lymphatics of the spinal cord through the lymph channels of the peripheral spinal nerves. Marinesco examined the nerves and spinal cord in a case of gangrene of the leg and found evidence of an ascending inflammation along the nerve lymphatics to the cord, which was the seat of perivascular infiltration and degenerated ganglion cells. David Orr has also investigated a case in which there appeared to be toxic infection of the cord along the neural lymphatics in the cervical region. Homen and Laitinen in a paper published in 1899 described the results of an investigation they had conducted on rabbits in connexion with this question. They injected streptococci or their toxins into the sciatic nerve or spinal cord of these animals and were in the former case able to trace both by culture and by sections the spread of the cocci or their toxins up the sciatic nerve, along the nerve roots into the cord and its meninges. The path of transmission was chiefly the lymphatic canal lying beneath the perineurium of the nerve and spinal roots, and it was noted that the posterior root was more favoured in this respect than the anterior. Within 20 hours of the injection cocci could be seen between the spinal meninges, chiefly in the neighbourhood of the entering roots. Thence they spread in the meninges all over the cord and even to the cerebrum. They entered the cord chiefly along the posterior median septum but also along the pial sheaths of other radial vessels and along the posterior and anterior roots. They were even found in the central grey matter. The histological changes corresponded to the localisation of the cocci. In the nerves the fibres degenerated and there were leucocytal infiltration and proliferation of the fixed cells of the endoneurium and neural sheaths. In the spinal ganglia there were cell changes, although the cocci were chiefly confined to their capsules. Small cell infiltration was referred to in the subdural sheaths of the roots and also in the meninges. Within the cord the authors describe degeneration of ganglion cells, hæmorrhages, and some proliferation of neuroglial cells, and, in some of the cases, rich, small round cell infiltration of the capillaries and tissue of the grey substance. Similar infiltration was observed, especially in the immediate neighbourhood of the posterior median septum, in other instances. When toxins were injected into the nerves the pathological changes were identical with those produced by the bacterial inoculation. If the cord itself was the site of inoculation similar changes were found and the spread of infection appeared to follow the lines of the meninges and central canal chiefly in an upward direction. The authors regard the changes as being due to the toxins rather than to the bacteria themselves. Homen in a later paper published in 1902 records a series of similar experiments carried out with the staphylococcus pyogenes aureus, the diplococcus pneumoniæ, bacteria coli, typhoid bacilli, &c. The animals which did not die spontaneously were killed at intervals varying from under 24 hours to three months after injection. The changes found in these experiments were very similar to those I have just referred to, but it was noticed that the ease with which the different bacteria spread in the nerves and cord was variable. Thus the bacillus coli had a much greater tendency to travel than the staphylococci or pneumococci, especially in the spinal cord. Another point of interest lies in the fact that the space of time during which the various organisms could be detected in the tissues after injection varied not only with the microbe but also with the tissue examined. In the case of the streptococcal experiments, for instance, in the course of a week or less all cocci had disappeared from the spinal cord, whereas they were still evident in the nerves for about another ten days.

The important deductions to be made from these investigations are the following. 1. That organic and inorganic substances when present in the lymph spaces of nerves tend to be carried centralwards towards the spinal cord and meninges, and especially through the posterior spinal roots. 2. Entry into the spinal cord is made chiefly along the various septa within the lymph channels of the radial vessels and along the anterior but more particularly the posterior roots. 3. That the same substances within the spinal cord and its membrane appear to travel upwards mainly between the meninges and along the central canal. 4 The changes within the cord resulting from its bacterial or toxic infection through these lymph channels are somewhat patchy and irregular, affecting the grey and white matter alike, with a special incidence on the posterior columns. 6. The morbid histological processes consist of toxic changes in ganglion cells, blood extravasations, small round cell infiltration of the tissues and perivascular sheaths, some proliferation of neuroglial cells, and parenchymatous degeneration of the nerve strands.

UNIVERSITY OF GLASGOW.—The Senate of the University has resolved to confer the honorary degree of Doctor of Laws on the Prince and Princess of Wales and many other distinguished persons, among whom are Professor J. N. Collie, F.R.S., professor of organic chemistry, University College, London; Professor John Gray McKendrick, Professor Alexander Moody-Stuart, and Dr. Donald MacAlister, the new Principal of the University. The degrees will be conferred on Tuesday, April 23rd.

The Hunterian Lectures

ON

THE RENAL FUNCTION IN ITS RELATION TO SURGERY.

Delivered before the Royal College of Surgeons of England,

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LECTURE I.

Delivered on March 1st, 1907.

[THE lecturer stated that he would confine his remarks to the subject of diagnosis and after referring to the pioneer work of Simon, Annandale, Morris, Hahn, and Czerny, he briefly sketched the cases in which information as to the renal activity was necessary. The subject was considered under two divisions: (1) the estimation of the total renal function; and (2) the estimation of the function of one kidney. He proceeded:]

1. THE ESTIMATION OF THE TOTAL RENAL FUNCTION.

Until a comparatively recent date the surgeon has been content to rely upon the symptoms and local signs of renal disease and the examination of the urine in order to judge of the activity or the reverse of the kidneys. I shall not dwell upon these. The kidneys may be exposed by operation and examined with a view to estimate the renal function. Palpation of the kidneys by the abdominal route has fallen into disuse from its unreliability. The exposure and examination of the kidneys by lumbar incision where the stability of the renal function is in doubt involve a risk which the surgeon may wish to avoid. And, moreover, it is not always easy to judge of the functional power of a kidney so exposed. In a case of suppression of urine following an operation upon a stricture I cut upon the kidney and stripped the capsule in the hope of relieving the renal tension that is supposed to exist in these cases. The kidney was flabby, and except for venous congestion did not differ in appearance, size, or consistence from a fully functional kidney. It is possible that some method may be developed by which fully functional kidney tissue can be recognised.

In a case of exploration of the kidney where I had used the methylene blue test for the purposes of diagnosis, and where the blue colour of the urine was still strongly marked, I hoped to find on incising the kidney that the exposure to air would produce the blue colour observed in animals that are passing methylene blue, and that I should thus be able to recognise the extent of the fibrous changes in the renal substance by the variations of staining. I was disappointed, however, for no change in colour was observed. Nor did the use of peroxide of hydrogen as an antiseptic during the operation bring out the colour.

I shall at once pass to the consideration of certain methods of estimating the renal function which have been introduced at a comparatively recent date.

Although it cannot be said that the physiology of the renal function is fully known, certain phenomena are recognised as being either a part of the function or inseparably connected with it. 1. The kidneys separate from the blood a fluid of different molecular composition—namely, the urine. The osmotic pressure of the urine is greater than that of the blood and the work performed by the kidney may be measured by estimating the osmotic pressures of these two fluids. This is conveniently done by investigating the freezing point of these fluids (cryoscopy). 2. The kidneys exercise a selective power by which certain substances are removed from the blood. Thus certain of the constituents of the urine do not appear in other secretions of the body, although they circulate in the blood. In similar manner certain foreign substances introduced into the blood are eliminated by the kidneys. Thus iodide of potassium, salicylate of sodium, and other drugs are passed out in the urine, and certain dyes, such as methylene blue, fuchsin, and rosaniline, may be recognised in the urine by the changes in colour which they produce. The kidneys are also said to have the power of removing certain toxic bodies from the circulation, the accumulation of which would produce the syndrome of uræmia. 3. It is further recognised that the kidneys have a synthetic action in regard to at least one substance (hippuric acid) which exists in small quantities in the urine and they are thus brought into line with glandular organs. It is known that the administration of phloridzin is followed by the temporary appearance of glucose in the urine and that the glucose is produced by the vital action of the kidney. 4. Finally, a controlling function over nitrogenous metabolism by means of an internal secretion has been suggested by certain experiments. The methods of estimating the renal activity which follow are dependent upon the examination of some of these functions.

1. *The Kidney as a Filter: (a) Cryoscopy.*

Dresser[1] has shown that the osmotic pressure of the urine is considerably in excess of that of the blood. If the kidneys are diseased their power of bringing about a change in the osmotic tension of the fluid passing through is reduced and the freezing point of the urine is raised. The credit of introducing this method into clinical medicine belongs to Koranyi of Budapest.[2] Koranyi has advanced a theory of renal secretion upon which several tests are based. This observer suggests that a solution of sodium chloride filters from the blood into the renal tubules at the glomeruli. As this solution passes down the tubules it is concentrated by the absorption of water, and an interchange of molecules between the solution and the blood takes place through the renal cells. Each molecule of sodium chloride which is passed from the urine into the blood is replaced by a molecule of a different nature, such as urea, uric acid, &c., derived from the blood.

The following methods are based upon the estimation of the molecular content of the urine and the blood by measurement of the freezing point:—

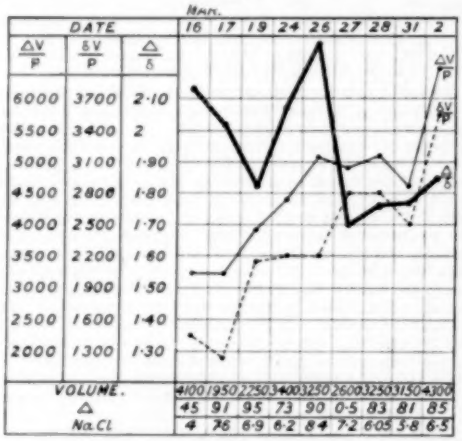
Cryoscopy of the urine.—The freezing point of the urine (point Δ U) represents the molecular concentration of the fluid without reference to the nature of the dissolved substances. In the healthy state it is liable to considerable variations. Koranyi places it between −1·30° and −2·30° C. Copious libations may raise it to −1° C. and profuse sweating may lower it to −2·30° or under. In nervous polyuria it may rise to −0·17° C. In a large number of urines there is a precipitation of urates at the freezing point and this materially affects the calculation. The quantity of molecules thus thrown out of solution is a variable factor, so that no correction can be made which will apply to all urines. The mixing of alkaline and acid urines also induces changes in the freezing point. Apart from these fallacies, however, the variations in the freezing point of the urine are so considerable in the healthy individual that no trustworthy observations can be made by this method.

According to Koranyi's theory the number of molecules of sodium chloride in the urine will depend upon the interchange of urea, &c., which has taken place in the renal tubules. By dividing the figures of the freezing point by the sodium chloride content per 100 cubic centimetres of urine, Koranyi hopes to estimate the work of the renal epithelium. The figures work out at 1·7, or in a series of cases at 2 or over. The more rapidly the sodium chloride solution is hurried past the renal epithelium the less will be the interchange of molecules, so that the product of this formula is smaller. The volume of urine thus comes to be an important factor. Claude and Balthazard[3] correct Koranyi's formula for both the volume and the total body weight and term the product the "total molecular diuresis." By calculation they ascertain from this the "diuresis of elaborated molecules," and after correcting this again for volume and weight they obtain the "sum of the molecular interchange" by the renal epithelium by dividing the former by the latter product. The accompanying chart (Fig. 1) shows in a graphic form a period of renal inefficiency in a case of chronic nephritis. The elabarate calculation thus entailed depends upon several factors each of which is liable to fallacy. It is known that there is a retention of chlorides in renal diseases and Claude and Mauté[4] make use of this fact to observe the result of a measured administration of chlorides compared with cryoscopy.

[1] Archiv für Experimentale Pathologie und Pharmakologie, 1892, Band xxix., S. 307.
[2] Zeitschrift für Klinische Medicin, 1897, vol. xxxiii., Nos. 1-2; Berliner Klinische Wochenschrift, 1899.
[3] Journal de Physiologie et de Pathologie Générale, 1903, 97.
[4] Société Médicale des Hôpitaux, 2 Mai, 1903.

Cryoscopy of the blood.—The freezing point of the blood is remarkably constant at −0·56° C., and the point Δ of the serum is practically the same as that of the blood. According to Koranyi, where one kidney is inefficient no change is found in the freezing point, but where the function of both kidneys is impaired the freezing point of the blood is lowered. A freezing point of −0·57° to −0·58° indicates a reduction in the total renal function. This margin of reduction is, however, too small and a point Δ of −0·59° or

FIG. 1.



Period of temporary renal inefficiency in chronic nephritis (Claude and Balthazard).

−0·60° should be shown before bilateral disease is diagnosed. Kümmel[5] looks upon a freezing point of −0·60° as a contra-indication to nephrectomy, and he believes further that when the molecular concentration is normal there is no interference with the total renal function. In 16 cases of bilateral renal disease this observer found the freezing point of the blood was from −0·60° to −0·65°, and in one case it was −0·71°. In 11 cases in which nephrectomy was performed a freezing point before the operation of −0·56° was taken as a proof of a healthy second kidney. After the operation the remaining organ in all the cases continued to secrete a sufficient quantity of healthy urine, and the freezing point of the bloood remained at −0·56°. In one case the freezing point before operation was −0·59° and after the operation −0·57°. It isundoubted, however, that a lowered point Δ of the blood to −0·60° may be found apart from lesions of the kidneys. In my own cases the method has proved trustworthy but the number of cases in which I have used it is small. In cases where the point was depressed I was able by other means, such as the methylene blue test or phloridzin glycosuria, to confirm the inadequacy of the renal function or the symptoms were such as to leave no doubt upon the subject. In a case of enlarged prostate I disregarded a freezing point of the blood of −0·66° C. as the symptoms of renal inefficiency were insignificant. The patient succumbed to suppression of urine after the operation. In another case where obstructive anuria was in progress the point Δ of the blood was −0·71° C.

Comparative cryoscopy of the urine and blood.—In the comparative cryoscopy of the urine and blood (Bernard[6]) the ideal method for the estimation of the work done by the kidneys would appear to be provided. The freezing point of normal urine is from −1·5° to −2° and that of blood serum −0·56°. The quotient of these will be 2·5 to 3·5 and when this figure diminishes we may conclude that there is a diminution in the permeability of the kidney. These figures are, however, affected in the same way as those of the urine alone. The wide range of variation of the freezing point of the urine in health will disturb the figures considerably. Bernard has endeavoured to correct this fallacy by introducing the volume of the urine in cubic centimetres into the calculation. The figures thus obtained will vary in normal individuals from 3000 to 5000. If we test this method on two types of cases—namely, a case of polyuria from interstitial changes in the kidneys the result of an enlarged prostate and a case of obstructive oliguria almost amounting to anuria—it will be found that the products of these formulæ successfully show the impaired function when oliguria is present, but fail to demonstrate the condition where polyuria is present.

[5] Beiträge zur Klinische Chirurgie, 1903, 37.
[6] Thèse de Paris, 1900.

(*b*) *Method of Wright and Kilner.*

Wright and Kilner[7] have taken advantage of the fact that complete destruction of the red blood corpuscles (hæmolysis) occurs at a certain point of dilution of the blood serum and under similar conditions in a suspension of blood corpuscles in urine, and use this as an indication of the dilution of these fluids. The result is expressed in the number of dilutions required to bring about the hæmolysis.

(*c*) *Electrical Resistance of the Urine.*

Aqueous solutions offer a variable resistance to the passage of an electrical current according to their composition, and Bordier of Lyons[8] has applied this method to the examination of the urine. The urine owes its conductivity almost entirely to its mineral constituents and not at all to its organic contents. According to Dr. Dawson Turner[9] the results of this method in renal disease correspond very closely to those of cryoscopy.

2. *The Elimination of Certain Substances in the Urine.*

It has long been recognised that the elimination of certain substances in the urine is hindered by disease of the kidneys. This subject has received the attention of Hahn, Rayer, Roberts, Duckworth, and others. Achard and Castaigne[10] in 1897 introduced methylene blue as a drug on which observations might readily be made. Fuchsin was used with a similar object by Bouchard and Lepine[11] studied the elimination of rosaniline. Observations have also been made upon the elimination of iodide of potassium and the subject has been reviewed by Lafaye,[12] while Sée,[13] Chopin,[14] and others have studied the elimination of salicylate of sodium.

(*a*) *The Methylene Blue Test.*

If methylene blue be administered in the form of pill or injected into the muscles the urine will, after a time, assume a blue or green colour. Intramuscular injection is preferable on account of the greater accuracy. Methylene blue is absorbed into the blood from the point of injection as a colourless derivative and this reduction takes place only by the action of living tissues. Microscopical examination of the blood shows no colouration of the plasma or of the white corpuscles and the spectroscope shows no change. Nor can this leuco-derivative be detected in the blood by the means by which it is demonstrated in the urine. The colourless derivative or chromogen is transformed into methylene blue by the liver and the kidneys and is excreted in the bile and the urine. The blue in the bile is apparently re-absorbed in the intestine. Methylene blue is eliminated in the urine in two forms, partly as methylene blue and partly as a colourless derivative or chromogen. The latter is transformed into methylene blue by boiling with acetic acid. About 50 per cent. of the total quantity of methylene blue injected is eliminated by the kidneys in the first 24 hours, but only part of the total methylene blue is passed by the urine. The elimination of methylene blue in a healthy individual is shown in Fig. 2.

In studying the elimination of methylene blue there are several points which claim attention: (1) the commencement of elimination; (2) the duration; (3) the quantity of colouring material eliminated as blue and as chromogen; and (4) variations in the course of elimination.

1. *The commencement of the elimination.*—Chromogen appears in the urine 15 minutes after the injection and the blue usually commences in half an hour. This relation of chromogen and methylene blue was the rule in my cases in health and disease. In pathological conditions of the kidneys the elimination of blue is delayed and may occur after one or three or even several hours. Occasionally the blue does not appear at all. The period of delay is to some extent a measure of the severity of the renal lesion, but cases are on

[7] THE LANCET, April 2nd, 1904, p. 921.
[8] Quoted, Debove, Achard et Castaigne: Maladies des Reins, 1906.
[9] Practical Medical Electricity, third edition, 1902.
[10] Bulletins et Mémoires de la Société Médicale des Hôpitaux, 30 Avril, 1897, p. 637.
[11] Lyon Médicale, p. 251, 1898.
[12] L'Elimination Urinaire de l'Iode, Paris, 1893.
[13] Bulletin de l'Académie de Médecine, 1877, p. 717.
[14] Thèse de Paris, 1889.

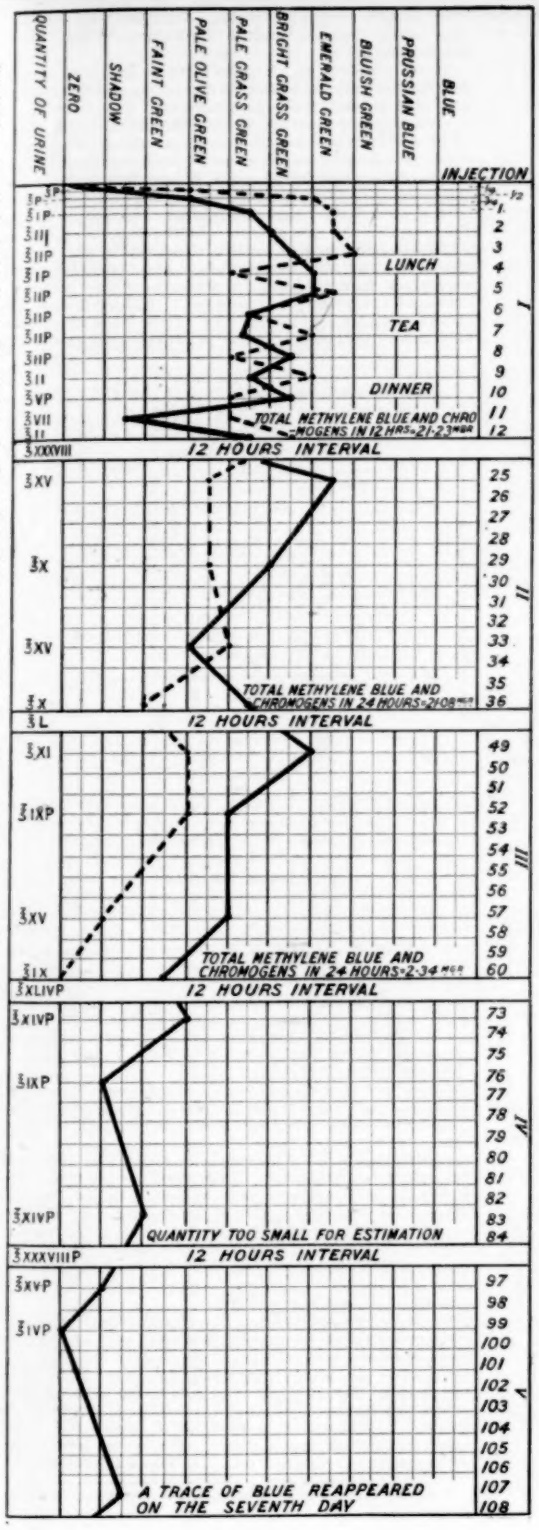


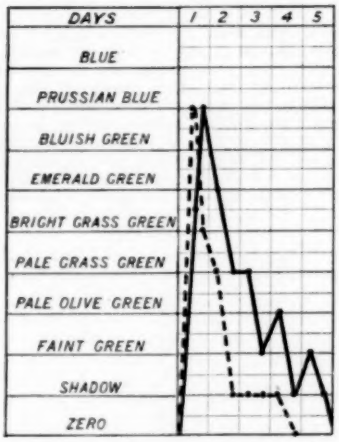
FIG. 2.

Elimination of methylene blue in a healthy individual. The elimination was prolonged as traces beyond the normal duration. Blue shown by dark continuous line, chromogen by dotted line. The chart shows the total daily elimination of blue and chromogen in milligrammes and the total quantity of urine in ounces.

record where a considerable delay was occasioned by renal lesions of an insignificant character. When the blue is delayed the chromogen is usually delayed also. Thus in two cases of malignant disease of the prostate without symptoms of renal disease methylene blue elimination was delayed three and four and a half hours and chromogen elimination 53 minutes and four and a half hours respectively. But, on the other hand, a normal commencement of chromogen may be observed when the blue is delayed. In a case of "fibrous prostate" methylene blue appeared in two and a half hours and chromogen in 15 minutes, and in a case of renal pain where the kidney had been explored three years previously the blue was delayed three and three-quarter hours and the chromogen appeared in 15 minutes. Where the blue does not appear in the urine at all the chromogen may appear late. In a case of pyonephrosis the chromogen appeared alone in one and a quarter hours and in a patient suffering from advanced bilateral pyelonephritis the chromogen appeared alone in one hour. An early onset (under 30 minutes) of elimination of blue has been observed by Bard [15] in epithelial nephritis. This early appearance of blue has also been noted in some cases of hypertrophy of one kidney (Albarran).

2. *Duration of elimination.*—In a healthy subject the whole excretion of blue is said to be completed in from 35 to 60 hours. My own observations seem to show that this period

FIG. 3.



Elimination in healthy subject prolonged to fifth day. Blue shown by continuous line, chromogen by dotted line.

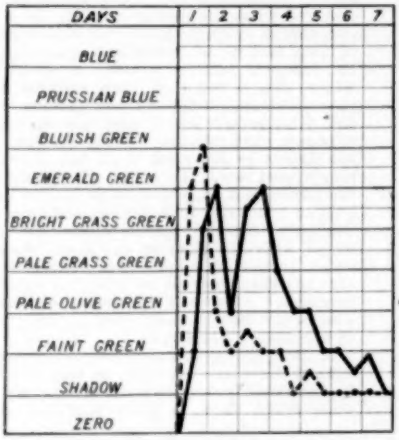
is too short. After the first wave of elimination had passed traces were observed in the urine during the fourth, fifth, and even on the sixth days in some healthy individuals. (Figs. 3 and 4.) In pathological conditions of the kidney the excretion may take place within those limits, but the duration is usually prolonged, more rarely it is shortened.

Shortened elimination.—An excessive quantity of methylene blue may be rapidly passed. This occurs, according to Bard, in parenchymatous nephritis. The shortened elimination may coincide with a considerable reduction in the quantity of blue eliminated. In these cases there is extensive disease of the kidneys. According to Achard and Castaigne [16] this short elimination occurs at the period when the blue is present in the blood in greatest quantity, and

[15] Gazette Hebdomadaire, 27th Mai, 1907, p. 494.
[16] Des Fonctions Rénales, 1900.

when the quantity of blue in the blood fails the kidney does not allow it to pass through. This does not, however, explain cases where the blue fails entirely to appear in the urine or only shows as a faint trace, yet the chromogens are excreted in fair quantity during a varying period. It appears to me that the difficulty lies in the transformation of the chromogen of the blood into methylene blue and that the diseased kidneys lack this power.

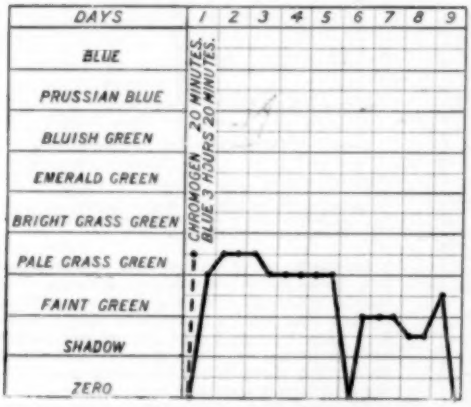
FIG. 4.



Elimination in healthy subject prolonged to seventh day. Blue shown by continuous line, chromogen by dotted line.

Prolonged elimination.—With a reduced quantity of renal tissue in disease of the kidneys the elimination of blue is prolonged. This is observed to a marked degree in chronic interstitial nephritis where traces of blue may persist for from six to ten days and more, rarely so long as 15 days. Prolonged elimination is also observed in surgical disorders of the kidneys. I have observed the elimination of blue during a period of eight days and 17 hours in a man, aged 67 years, who suffered from enlarged prostate and interstitial nephritis (Fig. 5). Faint traces are sometimes passed for

FIG. 5.

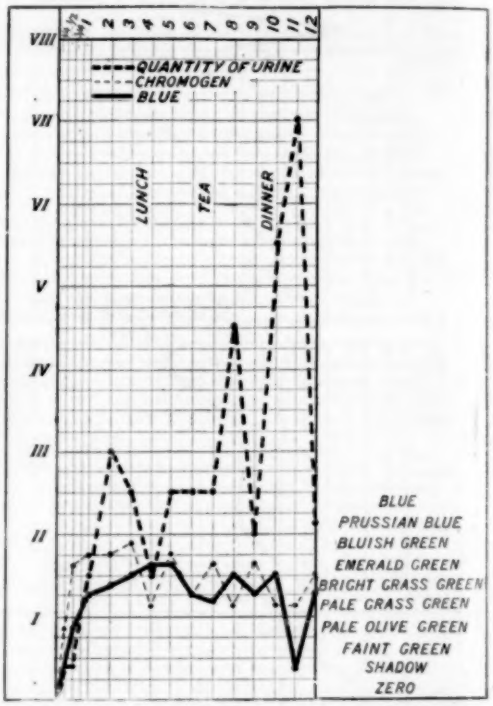


Enlarged prostate, interstitial nephritis. Delayed, prolonged, and diminished elimination of blue with single intermission on sixth day.

several days in individuals whose kidneys are healthy. In a healthy subject I was able to detect traces of blue on the sixth and seventh days after injection. There had, however, been intervals of clear urine. In a slight degree of renal impermeability the duration of elimination may reach the normal figure, but faint traces of blue may be detected in the urine for several days after the main wave of elimination has passed. The total quantity eliminated may not, however, differ greatly from the normal. Most frequently prolonged elimination coexists with a diminution in the quantity eliminated.

3. *The quantity of blue eliminated.*—For the purpose of quantitative estimation the chromogen must be transformed into blue in each specimen examined. The most accurate method is the comparison of the blue urine with a solution of blue of known strength, more blue being added until the depth of colouring is the same in both fluids. The yellow colour of the urine introduces a fallacy that is corrected by using the urine of the patient before the blue appeared and adding to this the standard solution of methylene blue.[17] For purposes of comparison charts may be constructed which show the varying depth of colouring of the urine and the course of the elimination. The quantity of blue eliminated is diminished in diseases of the kidney. In advanced disease no blue may appear in the urine and under these conditions chromogen may appear for a short time or may be entirely absent. In one patient under my care no blue

FIG. 6.



Normal elimination of methylene blue and chromogen compared with quantity of urine during first 12 hours after injection.

appeared in the urine although no appreciable renal lesion was present. The patient suffered from bilharzia cystitis and took the methylene blue by mouth for its therapeutic effect. He took half a grain of methylene blue daily for a month and two grains daily for two months, but no trace of blue or chromogen appeared in the urine. In four other cases no blue was passed and each of these patients suffered from advanced renal disease. In two of these chromogen was passed and in two it was absent.

4. *Course of elimination.*—The elimination of blue rapidly rises and reaches its maximum about three or four hours after injection and remains at its highest level for four or five hours. It then falls gradually and after 30 or 40 hours has usually been reduced to a pale green tint. After this traces may be passed for some hours or even for several days. During the excretion a draught of water will cause a rapid diminution in the colour, but after an hour or so the urine resumes its previous hue. In Fig. 6 the relation of the

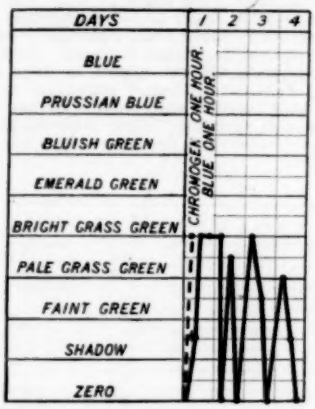
[17] Achard et Clerc: Bulletin et Mémoires de la Société Médicale des Hôpitaux, 1900.

quantity of urine and blue is shown and the cause of elimination by hourly observations during the first 12 hours in a healthy individual.

The elimination may be intermittent. It may fall almost to vanishing point and rise again or it may disappear entirely and reappear later. Disturbances in the rhythm of elimination occur in functional disorders of the liver. They are also said to occur in compensatory hypertrophy of the kidney. In 46 cases of different diseases Asfalg[18] observed intermittent excretion in 60 per cent., and in half of these it was diurnal. In 61 cases under my observation intermittent elimination was present in 14 (23·3 per cent.). In six healthy individuals the elimination was intermittent in all. (Figs. 7 and 8.)

The value of the methylene blue test in surgical diseases.—I used the test on six healthy adult men who volunteered

FIG. 7.



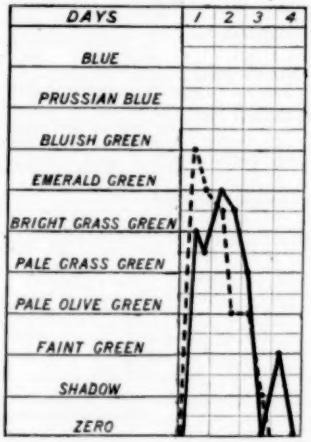
Intermittent elimination in a case of syphilis. No signs of disease of kidney. Blue shown by continuous line, chromogen by dotted line.

themselves for this service. In 55 cases injections of methylene blue were made for purposes of diagnosis. The dose in all these cases was the same—namely, 15 minims of a 5 per cent. solution of pure methylene blue.

These cases may be briefly summarised as follows. In some conditions which were unconnected with the urinary tract an unexplained delay in the commencement of elimination was observed. In inflammatory diseases of the bladder, where there was no reason to suspect renal changes, there was also a slight delay in the appearance of the blue. Cases of obstruction in the lower urinary tract invariably showed a delayed elimination. The average time of appearance of blue in 18 cases of obstruction was 3 hours 27 minutes. The delay was more marked where the obstruction was due to enlarged prostate than where it resulted from stricture. Thus, in eight cases of long-standing stricture the average time of commencement was two hours and 16 minutes, while in ten cases of prostatic obstruction the average delay was four hours and 25 minutes, and this did not include one case where no blue appeared. The duration of the obstruction did not sufficiently explain this difference, for the length of time during which symptoms of obstruction had been present was much greater in the strictures than in the prostatic cases. Nor was the degree of obstruction greater in the cases of prostatic disease. A similar difference was observed in the duration of the elimination of blue in cases of stricture and of enlarged prostate. The average duration in the former was 82 hours, not a very great increase over the normal figure, while in the cases of prostatic obstruction the average elimination continued for 118½ hours without taking the case of complete suppression of blue into consideration. In slightly damaged kidneys there was but little delay or prolongation, but where advanced renal disease was present there was delay, diminished and prolonged elimination. In severe bilateral renal disease the blue did not appear in the urine at all. There were altogether five cases in 61 where blue did not appear in the urine. One of these was the case of bilharzia cystitis in which the kidneys were probably healthy and which I am inclined to look upon as a very unusual observation. The remaining four cases were—one case of urinary obstruction from enlarged prostate, one case of bilateral renal calculus, one case of pyonephrosis with stricture of the urethra, and one case of pyelonephritis with abscess of the prostate and foul cystitis.

I operated upon three of these cases and refused operation in one. The patient with bilateral renal calculus who was refused operation died 18 months later from suppression of urine. Of the three cases that were submitted to operation two died. On one of these the operation was done to relieve a large collection of pus in the prostate when the patient was beyond hope of recovery. The other two cases were operated with the hope of cure. The patient with enlarged prostate showed no symptoms of renal inefficiency before operation. He was a spare, muddy-complexioned man who had suffered from complete retention of urine for some months. The urine had a specific gravity of 1010. There was an increased quantity of urine and the urea varied from 0·6 to 1·1 per cent. The temperature occasionally rose to 100° F. The operation presented no difficulty and the enucleation lasted three and a half minutes. After operation the urine gradually failed and the patient died on the fifth day. The patient with pyonephrosis did not show any signs of failing renal function, but he was a heavy lymphatic man and a poor subject for operation. After nephrotomy he showed signs of commencing renal failure, but these passed off and similarly, after nephrectomy a fortnight later, there were vomiting, restlessness, distension, and diminished urine, but he recovered. The methylene blue test was again used after the nephrectomy. Blue appeared in the urine after one and a

FIG. 8.



Intermittent elimination in healthy individual. Blue shown by continuous line, chromogen by dotted line.

half hours and chromogen after one hour. The blue disappeared in 25 hours; the chromogen, which was present in greater quantity, pursued an intermittent course and disappeared in 53 hours (Fig. 9).

The value of methylene blue as an indication of the state of the renal function must be judged by a comparison with the information obtained from the symptoms and the examination of the urine. Three out of eight cases of stricture showed insignificant symptoms of renal inadequacy; in all the excretion of urea was large. In all of the cases there was delay and, in several, prolongation of blue elimination. The cases were selected as having suffered from intractable stricture for long periods and belonged to the class of case in which renal changes are common. In these cases the methylene blue appeared to be a more accurate test than the symptoms or the quantitative estimation of urea. In 11 cases of prostatic obstruction there were insignificant symptoms of renal inadequacy in three and fairly marked symptoms in one case. There were invariable delay and prolonged elimination of blue

The cases already quoted of complete suppression of blue when no symptoms of renal inadequacy were present may be

[18] Zeitschrift für Innere Medecin, 1902, p. 226.

taken as a type of the more accurate indication of the renal function by methylene blue. Further, the comparison of the result of the blue test in these prostatic cases with that of the stricture showing a less efficient renal function in cases of enlarged prostate than in stricture which was not shown by the symptoms is borne out by clinical experience of such cases. In two of the cases of kidney disease there were general symptoms of renal inadequacy; in one this was only continuous thirst, in the other the symptoms were well marked. In these cases no blue was passed. In the other two cases where no symptoms of renal failure were present and no blue was passed one died after the operation and had advanced interstitial changes in the kidneys and the other developed grave symptoms of renal failure after the operation, but these passed off. In one case there was a very marked improvement in the elimination of blue after the removal of a large pyonephrosis and this was attributed to the removal of a reno-renal reflex inhibition. The test is, I believe, one which is more trustworthy than the quantitative examination of the urea or the general symptoms of renal inadequacy. And this is especially the case in the more severe grades of kidney disease. In the slighter grades of renal disease the blue test appears to give results that are somewhat variable.

It has been urged in criticism of this method that the formation of chromogen introduces an element of uncertainty into the test. The chromogen should be converted into blue when the quantity of the dye is estimated. The elimination of the blue by the liver appears to me to be a more serious disadvantage and one which cannot be overcome. Lépine[19] has drawn attention to a fallacy which underlies observations on this and similar methods. The kidney does not eliminate all bodies without distinction in the same manner, and data obtained from the elimination of one body may not be reliable when applied to another. It is undoubted, however, that there is a certain parallelism in the elimination of different bodies and that the general permeability of the kidney for most bodies which it excretes is approximately similar to that of methylene blue.

(b) The Toxicity of the Urine.

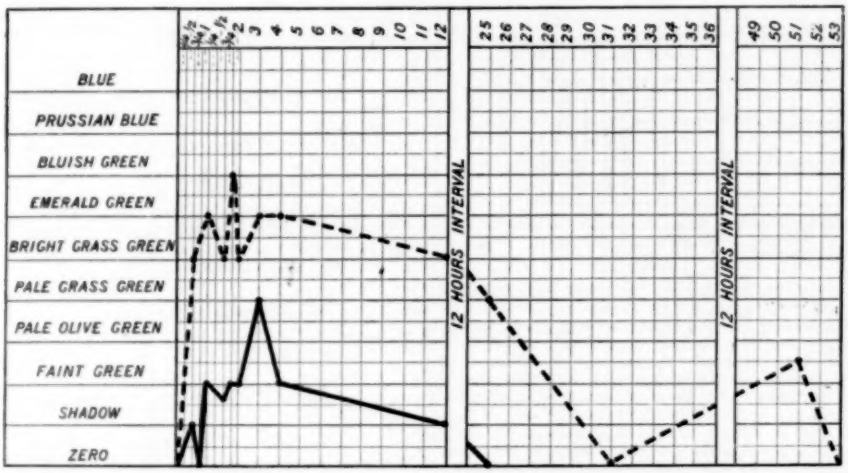
Professor Bouchard introduced the method of estimation of the toxicity of the urine as a means of determining the efficiency of the kidney to eliminate the poisons produced by metabolism. This method attributes to the kidney as its most important function the removal from the blood of certain substances which, if retained, would cause uræmia.[20] The normal urine is highly poisonous but the exact nature of the poison is unknown. The injection of a certain quantity of urine into a rabbit causes symptoms of poisoning and death after a varying interval. The lethal dose of normal urine for rabbits is stated at from 40 to 50 grammes per kilogramme of body-weight. Retention in the body, or increased excretion in the urine, of poisonous substances will cause variation in this dose. Most observers who have used the method agree that it is likely to afford useful information if the toxicity of both the urine and blood be examined, but that it is open to many fallacies and cannot be judged with mathematical exactness.

3. *The Glandular Function of the Kidney.*

Phloridzin test.]

Mering[21] discovered in 1885 that the injection of phloridzin caused a temporary glycosuria of a few hours' duration. The amount of sugar excreted does not depend upon the dose of phloridzin, provided sufficient of the drug be given to produce the maximal effect. The source of the sugar is apparently the tissue proteid. The phloridzin glycosuria is renal in origin as the experiments of Zunz,[22] Biedl, and Kolisch[23] have shown. Klemperer[24] was the first to apply this method to clinical medicine. He showed that phloridzin glycosuria did not appear in cases of chronic nephritis. Achard and Delamere[25] introduced the drug as a test of the renal function and brought its use within the range of practical medicine. These observers showed that the sugar production was dependent upon the functional activity of the kidneys, and any variation must indicate a departure from the normal functions of the kidneys.

FIG. 9.



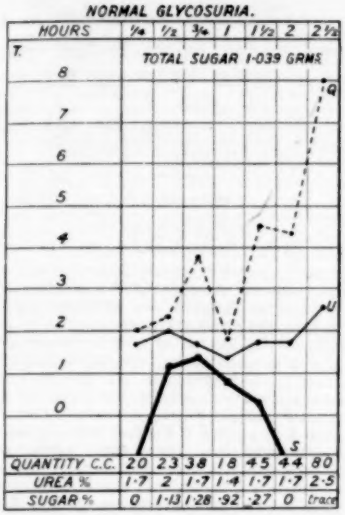
Pyonephrosis. Chart of elimination of blue (continuous line) and chromogen (dotted line) after nephrectomy. Neither blue nor chromogen appeared in the urine in a previous test before nephrectomy.

Technique of the phloridzin test.—A subcutaneous injection of 15 minims of phloridzin solution (1 in 200) is made. This corresponds to five milligrammes of phloridzin. In a healthy individual sugar appears in the urine in from 15 to 30 minutes and the glycosuria continues for from two to four hours. The most important factor in the test is the total quantity of sugar eliminated. This varies from one to two grammes. The lowest limit of normal glycosuria lies between 50 centigrammes and one gramme and the highest from 2 grammes to 2·50 grammes. In the accompanying chart (Fig. 10) the normal course of the elimination of sugar after an injection of five milligrammes of phloridzin is shown. The curves of quantity of urine and urea also appear on the chart. Delay in the appearance of the sugar or prolongation of the elimination to five or six hours as slight traces are not signs of abnormal function.

[19] Lyon Médicale, 20 Février, 1898.
[20] Hallion et Carrion: Presse médicale, 30 Juin, 1900, p. 321.
[21] Centralblatt für die Medicinischen Wissenschaften, 1885, S. 531.
[22] Verhandlungen der Physiol. Gesellsch. zu Berlin, 1894, S. 51.
[23] Quoted, Pavy, Brodie, and Siau: Journal of Physiology, 1903, p. 467.
[24] Verhandlungen der Verein für Innere Medicin, Mai, 1896.
[25] Bulletin et Mémoires de la Société Médicale des Hôpitaux, p. 381, 1899.

Variation in the phloridzin diabetes of normal kidneys.—Achard and Delamere have shown that a diminution of the quantity of sugar eliminated (hypoglycosuria) or an excessive diabetes (hyperglycosuria) may take place without

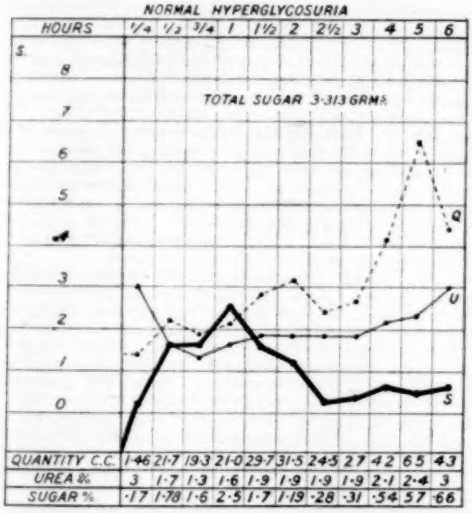
FIG. 10.


NORMAL GLYCOSURIA.
HOURS ¼ ½ ¾ 1 1½ 2 2½
T.
TOTAL SUGAR 1·039 GRMS.
8 7 6 5 4 3 2 1 0
Q
U
S
QUANTITY C.C. 20 23 38 18 45 44 80
UREA % 1·7 2 1·7 1·4 1·7 1·7 2·5
SUGAR % 0 1·13 1·28 ·92 ·27 0 trace

Sugar shown as dark continuous line (s), urea as faint continuous line (u), and quantity as dotted line (q). Observations made every quarter of an hour for one hour and every half hour after that.

anatomical changes being present in the kidneys. Normal hyperglycosuria is more frequently observed in healthy individuals than a diminished secretion of sugar. It has been met with under the most varying conditions, such as

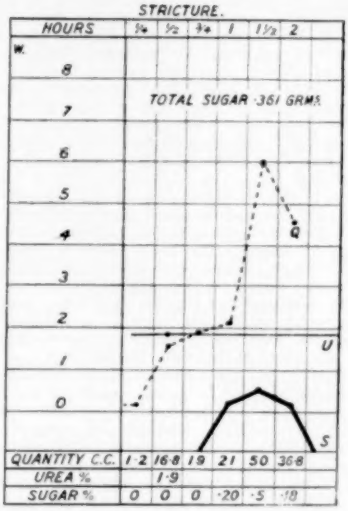
FIG. 11



Excessive quantity of sugar after injection of five milligrammes of phloridzin. Healthy subject. Sugar indicated by thick continuous line, urea by thin continuous line, and quantity of urine by dotted line.

typhoid fever, acute articular rheumatism, and bronchitis. In two healthy adults, under exactly similar conditions, the hypodermic injection of five milligrammes of phloridzin produced a glycosuria in the first which commenced in 15 minutes and lasted six hours, with a total elimination of 3·313 grammes of sugar (Fig. 11), and in the second a glycosuria which commenced in 30 minutes and lasted two and a half hours, and 1·039 grammes were eliminated (Fig. 10). The first was a hyperglycosuria, while the second was a normal glycosuria.

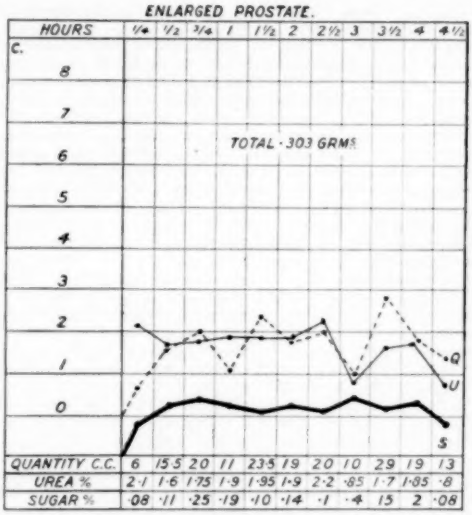
FIG. 12.



Diminished and delayed elimination of sugar in case of stricture.

Phloridzin test in renal disease.—The important variations found in renal disease are either a diminution of the quantity of sugar below one gramme or a complete absence of the sugar; a normal glycosuria has rarely been observed. Two examples occur amongst Delamere's cases,[26] and three cases are described by Jouffray.[27] Albarran has met with

FIG. 13.



Diminished and prolonged elimination of sugar in case of enlarged prostate.

several instances of marked hypoglycosuria with insignificant lesions of the kidney. This observer has also recorded instances of hypoglycosuria in unilateral renal lesions where the second kidney was functionally perfect by other tests.

[26] Thèse de Paris, 1899.
[27] Thèse de Lyon, 1903.

Among my cases was one of renal colic in which the total glycosuria amounted only to 0·53 gramme, and another of moveable kidney in which the glycosuria was 0·61 gramme. In two cases there was hyperglycosuria. In one I had recently removed a tuberculous kidney and there still remained severe tuberculous cystitis, but the solitary kidney was healthy. In this patient 5·21 grammes of sugar were rapidly eliminated, commencing half an hour after the injection. In the second there was chronic pyelonephritis more marked on one side. There were periodical exacerbations and the general symptoms pointed to a failing renal function. The patient passed 3·40 grammes of sugar in two hours. The quantity of sugar was diminished in cases of moveable kidney, renal colic, vesical calculus with slight pyelitis, enlarged prostate with interstitial changes in the kidneys, tuberculous kidney, and intermittent pyuria of obscure origin.

The value of the phloridzin test.—A diminished phloridzin glycosuria indicates in most cases disease of the kidney, and a complete absence of sugar should be regarded as a sign of advanced renal disease. The cases to which I have referred point in this direction and the conclusions were supported by other evidence. Sugar was entirely absent in four cases: a patient with a damaged solitary kidney after nephrectomy for pyonephrosis, another with obstructive oliguria which became anuria, and two cases of enlarged prostate with urostasis. In these there were no symptoms pointing to renal inadequacy in the solitary kidney case and in one case of enlarged prostate. In the case of oliguria there was the diminished urine but no general signs at the time of the test, and in the enlarged prostate the signs of renal inadequacy were well marked—there were dry glazed tongue, thirst, headache, marked loss of flesh, loss of appetite, and nausea at times. The former case was under my colleague, Mr. J. G. Pardoe, and he kindly permitted me to examine the patient and to watch his progress. In the case of solitary kidney the patient had shown signs of renal inefficiency immediately following the operation of nephrectomy but these had subsided. The urea amounted to 1 per cent. and 1·2 per cent. on two separate examinations of 24 hours' specimens.

I have already referred to the case of enlarged prostate in considering the methylene blue test. The patient showed no symptoms of renal inefficiency with the exception of a moderate polyuria. The total urea excretion was well up to normal. No phloridzin glycosuria was observed. The patient died from suppression of urine after prostatectomy and his kidneys showed advanced interstitial changes and were hollowed from pressure. In the second case of enlarged prostate there were symptoms of renal inadequacy. After a period of bladder drainage the symptoms were less marked and the injection was repeated. On this occasion a reduced quantity (0·303 gramme) of sugar was eliminated. After prostatectomy the patient was drowsy for three days but his urine was plentiful and he made an excellent recovery. There was diminished glycosuria without symptoms of renal disease in several cases where it seemed improbable that the renal function could be impaired. Thus in a case of moveable kidney the excretion was 0·614 gramme. In obstruction from stricture (Fig. 12) or enlarged prostate (Fig. 13) there was diminution of the glycosuria.

Compared with the urea output and the general symptoms of renal inadequacy the phloridzin test was more delicate in these cases. The fallacy to which it is specially open is the pronounced effect which minor renal changes may produce upon the glycosuria. It is possible that this fallacy may be overcome by the use of larger doses of phloridzin, as Albarran has suggested.

I have indicated the fallacies and difficulties connected with each of these methods. As a measure of the total renal function the phloridzin and methylene-blue tests are most trustworthy. The phloridzin method is open to the objection that it is too easily influenced by slight variations in the renal function. At the present time the methylene-blue test is the method by which most trustworthy information can be obtained and appears to me to form a valuable addition to the clinical methods of estimation of the renal function.

Surgeon-Colonel P. B. Giles, V.D., F.R.C.S. Edin., Commandant Volunteer Ambulance School of Instruction, has been pricked as high sheriff for the county of Bucks.

The Lettsomian Lectures

ON

THE DIAGNOSIS AND LOCALISATION OF CEREBRAL TUMOURS.

Delivered before the Medical Society of London,

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LECTURE III.[1]

Delivered on March 4th.

TUMOURS OF THE SUPRAMARGINAL AND ANGULAR GYRI.

MR. PRESIDENT AND FELLOWS,—From the temporal lobe we may pass now to tumours of the supramarginal and angular gyri, convolutions of the inferior parietal lobe, which lie respectively round the posterior ends of the Sylvian fissure and the parallel sulcus so that the superior temporal convolution is connected at its posterior end with the contiguous parts of the supramarginal and angular gyri. What are the functions of the supramarginal and angular gyri? They are probably inexcitable to electrical stimuli in man, and according to Dr. David Ferrier[2] the angular gyrus is connected with vision and lesion of it causes temporary blindness of the opposite eye. In the case of tumours it would not be possible to exclude the structures which lie beneath the cortex and particularly the optic radiations, the fibres which run from the optic thalamus to the visual centres in the occipital cortex, and hemianopia may be caused by these fibres being involved.

In the first case the tumour was in the left supramarginal gyrus, the part of the parietal lobe which is posterior to the intraparietal sulcus and which lies round the posterior end of the fissure of Sylvius. In this case, under the care of Sir William Gowers, with a tumour on the *left* side which was subsequently removed by Sir Victor Horsley, there was for 13 months headache over the *left* occiput and the vertex, with tenderness above the *left* ear. There was no vomiting but marked optic neuritis was present. For 11 months there were several fits a day, with faintness, giddiness, and loss of consciousness but without convulsions. After the attack there was numbness of the *right* hand and the patient was dazed and could not speak properly. For five months he could not read or write. On admission there was weakness of the *right* arm and leg, with occasional twitching of the right fingers. He had momentary attacks of unconsciousness followed by difficulty of speaking and numbness of the right hand. Also he had word blindness, so that while he understood spoken commands and could name letters, words, and objects, he could not read except very simple sentences and could not make up words with letters. He made mistakes in writing. He had also right hemianæsthesia with defective localisation, but his sense of position was good.

In the second case, under the care of Dr. Hughlings Jackson, a man, aged 27 years, had a large tumour—a glio-sarcoma—in the left parietal region, where the growth came to the surface over an area of the size of a five-shilling piece. The growth was limited in front by the ascending parietal convolution and along the intraparietal sulcus the cortex of the brain was shrunken; behind, the angular gyrus was partially involved and by recent growth; below, the growth was bounded by the supramarginal gyrus which was not invaded and above by the superior parietal lobule, which was somewhat involved. It extended deeply inwards for about two-thirds of the distance to the median surface of the hemisphere. The onset was probably nine years ago, when the patient's speech suddenly became queer for two hours; his words were all right but his sentences were wrong, and then he had a fit, losing his senses and biting his tongue. He recovered speech on the next day. A year later he had a second attack which began with a peculiar feeling; he tried to

[1] Lectures I. and II. were published in THE LANCET of Feb. 9th (p. 343) and 23rd (p. 491), 1907, respectively.

[2] Croonian Lectures, 1890, p. 55.

speak and could only say "Thank you," but could understand partially what was said to him. The whole attack lasted two hours and was not followed by paralysis. Another year later he had a third attack and lost his speech entirely, but could partially understand spoken words. There were no convulsions. Since then he had had several attacks, one a month, lasting a few minutes, losing speech but without convulsions. He did not lose power altogether of writing in the attacks. For three months he had had difficulty in reading aloud and some difficulty in writing.

On admission the patient's speech was slow but he understood spoken commands; he could pick out objects named to him and could name common objects shown to him but not the less common ones, though he recognised the name when it was mentioned. He understood what he read but he read slowly. He read badly aloud. In writing he could copy, but in writing from dictation he was very slow and incorrect, but he could write spontaneously fairly well, leaving out words here and there, and many words were crossed out. Smell, taste, and hearing were good. No optic neuritis was present. There was no loss of power or sensation, nor was there astereognosis. The reflexes were normal. The fields of vision were contracted. In hospital he had a fit beginning with loss of speech and with numbness and tingling and weakness in the right hand and foot; then he had "shimmering before his eyes and in waves." After the attack the field of the right eye was concentrically contracted. In most attacks he felt dizzy, lost his speech, or said wrong words, his eyes and head turned to the right, both legs and arms became stiff, and there was numbness of the right hand. He staggered to the right if he tried to walk. In the fits he had sometimes a sense of glaring light with the general waviness. Vomiting and retching occurred in the last three months. Later he had commencing optic neuritis, right disc = + 3·5, left = + 4·5, and the right side of the face was weaker than the left. The knee-jerks were both brisk. Plantar reflex: right indefinite, left flexor. He gradually became worse and died.

The main points in this case were the absence of severe vomiting and of headache till the last three months and of optic neuritis till the end, the attacks with loss of speech, the difficulty of reading with power to understand spoken words, the contraction of the right visual field, and the difficulty in writing, which was probably dependent on his difficulty of reading and was not an absolute agraphia. The part of the brain, lesions of which cause word blindness, is the angular gyrus, which in this case was not affected till later. It seems probable that the transient attacks were due to pressure and irritation of this gyrus rather than destruction of it, which would produce permanent word blindness. The concentric limitation of the field of the right eye would be due to the angular gyrus being involved and it bears out Dr. Ferrier's view that the whole field of the opposite eye is localised there. The absence of astereognosis does not support Dr. C. K. Mills's theory of its localisation in the superior parietal lobule.

In the two cases just described the tumours were situated in the parietal lobe of the left side; in the three following cases the tumour occupied the parietal lobe of the right side.

In a case under the care of Dr. H. H. Tooth there was a large tumour about one and three-quarter inches in diameter posterior to the intraparietal sulcus of the *right* side; there was no defect of speech and the fits were more like those from a tumour of the ascending parietal—viz., pain in the *left* arm going up to the face, with twitching of the left arm and leg. There were occasional incontinence of urine with weakness of the left arm and leg and probable loss of sensation over the whole left side and hemianopia, but as the patient was in a dull, stupid state from which he had to be roused to answer questions it was very difficult to test him.

The next case was that of a man, aged 37 years, under my care, who with no history of specific disease had two years before admission a general epileptic fit without any warning; then for five months he had unpleasant throbbing feelings and noises in his head, and he was treated by a medical man who said that his liver was out of order. A year later he began to have fits about once a week with pins and needles in the side of his left foot running up to the knee and then starting afresh in the left biceps, lasting for two minutes; there was a feeling of twitching in the left biceps like galvanic shocks but it did not move. Sometimes the feelings began in the arm. Two months before admission he had a general fit with unconsciousness but without any warning. About nine months before admission he had an attack in which he became dazed and found that he had lost sight of his left half-fields, lasting for an hour and then passing off; he had four of these attacks in six months and they were not preceded by any visual aura, and two months before admission this left hemianopia became permanent. The sensations continued in the left foot but in one attack they began in the left side of the abdomen.

On admission the patient had no headache, no tenderness of the cranium, no optic neuritis, and no vomiting. There was no paralysis. The deep reflexes were brisk and equal and the superficial reflexes were normal. Sensation was normal. The sense of smell was defective on the right side. There was well-marked left hæmianopia, so that he could not see anything to the left of the central point of vision in each eye. He left hospital on July 29th, 1904. On Dec. 7th of the same year he was readmitted. On every fifth or sixth day he had a curious sensation in the left side, beginning in the left leg, as if the leg were going to jump, though there was nothing to be seen, and this sensation passed upwards like a galvanic shock, with numb feeling in the left foot or arm; he felt as if he should fall. In the previous September he suddenly found that he had no feeling in the left hand and forearm; the anæsthesia lasted for ten minutes. There were no twitching, no pain, and no loss of power. Occasionally since then his fingers felt asleep and felt swollen. He had one general convulsive attack without any warning and with loss of consciousness. For ten days the left fingers, hand, and wrist felt weaker; also there was dragging of the left foot in walking. On readmission he had headache in the forehead, which was not severe. There was no vomiting. His memory was failing and he was languid and sleepy. His attention and intelligence were good. The hemianopia was getting worse. His speech was good. The left arm was weak, but could perform all movements. In regard to sensation, there was occasional numbness of the left fingers and hand, but no objective impairment. On Dec. 12th the upper edge of the right disc was blurred. On Feb. 10th, 1905, the whole of the right disc was blurred, + 3 dioptres; left, + 2 dioptres. There was headache later which was more severe. He had attacks of numbness in the left hand and in one attack there was weakness of the left leg. There was internal strabismus; the upward movement of both eyes was deficient; lateral movement of right eye to right not past median line; good on left. Sir Victor Horsley removed a double cyst from the right inferior parietal lobe posterior to the middle part of the ascending parietal convolution; the cyst was slowly shelled out, separating the cyst wall from the surrounding tissue. The tumour extended downwards and backwards and to a slight extent forwards.

The next case was that of a woman under my care who had a tumour measuring 2½ by 1¾ by 1½ inches, involving the central white matter in the posterior half of the right hemisphere, and extending backwards to a point one inch from the occipital pole; it lay beneath the cortex of the supramarginal and angular gyri and extended across the white matter to the median surface where it formed a projection in the cortex of the quadrate lobule. Internally it involved the posterior part of the corpus callosum, the optic radiations, and the posterior quarter of an inch of the internal capsule. For five months before admission she had involuntary micturition; five weeks previously she had a general fit and after it she had paralysis of the left side. There was no definite optic neuritis till seven weeks before her death, and she had no headache or vomiting till after her admission to the hospital. Her mental condition was bad; she was in a torpid, drowsy condition, and refused food, and towards the end had frequent vomiting. The left pupil did not react to light and the right was sluggish. She had left hemiplegia with increase of the deep and diminution of the superficial reflexes, and extensor plantar reflex on the left side, loss of the sensation of pain and touch over the left half of the face, limbs, and trunk, and loss of the left half of the fields of vision for each eye (left hemianopia). Her speech was not affected.

The cases of tumour of the supramarginal and angular convolutions which I have just detailed to you are five in number, two being in the left hemisphere and three in the right. Taking first the general symptoms of tumour we notice at once either that these symptoms were absent or that they were developed very late in the course of the disease. Headache was present throughout in the first case and severe in the third case but in the other cases it was not severe and was absent till the end of the case. Vomiting did

not occur at all in three of the cases and only at the end in two cases. Optic neuritis was marked in the first case, it was absent in the third case, and in the other cases it was not observed till very late in the course of the disease. In all cases there were fits, either general convulsions without any warning, faints like petit mal, or Jacksonian attacks without loss of consciousness. These last fits were always preceded by a sensory aura, such as pain in the left arm followed by twitching. In one case besides general fits the patient had tingling in the left foot which spread up to the arm and he had the feeling as if the arm was twitching, but there was no actual movement. This sense of movement was probably due to irritation of the ascending parietal convolution. In one case hemiplegia occurred early in the case but in all the others there was only slight weakness of one side and this weakness occurred late either with normal reflexes or with the increase of the deep and diminution of the superficial on that side. Sensation in two cases was not permanently lost, although in both cases the patient had attacks beginning with a sensory aura, but in the other three cases there was hemianæsthesia and in two cases hemianalgesia. Hemianopia of the fields on the side opposite to the tumour was present in every case except two, and in one of these the field of the opposite eye was concentrically contracted. The sense of smell was deficient on the same side as the tumour in two cases. The most important symptom was the affection of speech. In the three last cases when the tumour was on the *right* hemisphere speech was not affected; in the first two cases affecting the *left* hemisphere there was a definite amount of word blindness. In the first case the patient had dazed fits and could not speak properly, and subsequently could not read or write though he could name letters, words, and objects, and could understand spoken commands (i.e., auditory). In the second case the illness began with fits in which the patient's speech became queer, using wrong sentences, and before some fits losing his speech altogether. He could speak slowly, he understood spoken commands which he could hear, but had difficulty in reading and understanding written commands which he had to see. This patient had also fits accompanied by "shimmering waves and a glaring light."

In the foregoing account the fits, which begin with a sensory aura, are probably due to pressure on the ascending parietal convolution with consequent irritation of that part. Paralysis of motion and sensation does not occur unless the motor or sensory fibres of the corona radiata or internal capsule are pressed upon or involved by the tumour. The permanent hemianopia would probably be due to the optic radiations being invaded, while the concentric limitation observed in one eye would, according to Dr. Ferrier's experiments, be due to a lesion of the angular gyrus. The particular affection of speech called "word blindness," where the patient is unable to understand written commands which are brought to his mind through his organs of sight, is considered to be situated in the left angular gyrus, though in the first of these cases the tumour was removed from the supramarginal and probably compressed the angular gyrus. Therefore we may say that with tumours in the parietal lobe posterior to the ascending parietal convolution the general symptoms tend to be absent or to appear late in the disease; the fits are general or begin with a sensory aura; paralysis of the side opposite to the tumour with the accompanying alteration of the reflexes is absent, slight, or occurs late, unless the tumour extends deeply, as in the last case, and involves the internal capsule; hemianæsthesia and hemianopia on the opposite side occur frequently and if they are permanent it would show that the sensory fibres and the optic radiations were destroyed. If the tumour be in the *left* parietal region word blindness, either transient or permanent, is present.

TUMOURS OF THE PITUITARY BODY.

The tumours which I propose to bring next to your notice are the tumours of the pituitary body. This body is situated in the centre of the base of the brain in the middle line and it rests in the hollow of the sella turcica just behind the chiasma of the optic nerves. From its proximity to the chiasma the optic fibres, which come from the inner or nasal half of each retina, are liable to be pressed upon by a tumour growing in the pituitary body and thus to produce blindness of the inner half of each retina. Now, the rays of light which impinge on the nasal or inner half of each retina come from the outer or temporal fields of each eye; hence in tumours of the pituitary body patients suffer from the loss of vision for the outer half of the field of vision of each eye, or bi-temporal hemianopia. Further, there is a peculiar disease, which was first described by Dr. Pierre Marie of Paris, and which is characterised among other symptoms by enlargement of the extremities, the hands, feet, nose, and chin, and is called acromegaly. In a certain number of these cases enlargement of the pituitary body has been found, and in these cases bi-temporal hemianopia has been present. The exact relation between the pituitary body and acromegaly is not quite certain, as every case of tumour of the pituitary body does not show signs of acromegaly.

The first case of tumour of the pituitary body, which was under my care seven years ago, was that of a woman, aged about 29 years, who five years previously had a severe mental shock. For four years she had severe headache and vomiting, and three years ago she had diplopia, which lasted only for a month. At this time she felt very listless and her skin felt to be too thick. About six months later she had pain in her right eye. She ceased to menstruate, for which she consulted Dr. A. E. Giles who asked me to see the patient. She got thin, but her hands and feet were noticed to be large, and a year before I saw her she had curious attacks of feeling strange, with a horrible feeling of dryness in the mouth followed by a glow all over her lasting for one minute but without loss of consciousness; also she had attacks of feeling faint and attacks of vomiting several times a week. There was slight headache over the right eye. When I saw her she had double optic neuritis, but there was no limitation of the fields of vision. She had paralysis of some of the ocular movements; with the right eye she could not look upwards and she had some diplopia on looking in all directions. The right pupil was larger than the left and it did not react to light though it did dilate when shaded. Besides these symptoms the face was noticed to be unsymmetrical; also it was observed that the extremities—viz., the feet, the hands, and the nose—had grown larger than they should be. She later developed bi-temporal hemianopia. A month or two later Sir Victor Horsley removed some bone in the right temporal fossa to give vent to the increased intracranial pressure and it was noticed at the operation that the bone was of a remarkable blue colour and had a thin fibrous appearance like papier-maché and cutting it with bone forceps produced no sound. Her headache and vomiting were much relieved by the operation. She died about four years later and a tumour was found in the pituitary body compressing the base of the brain.

The next case was that of a man under my care, aged 36 years, who had for two years complained of pain in the frontal or occipital regions, failing eyesight which was blurred and worse for the last three months, vomiting which occurred daily a week before his admission, and general weakness. He had also occasional attacks of giddiness. Mentally his memory had become very bad and he had been lethargic and drowsy with definite delusions. On admission the sense of smell was not affected; the optic discs were both pale with evidence of old neuritis. He had bi-temporal hemianopia—i.e., loss of the outer half of the field of vision for each eye. The right pupil was larger than the left and did not react to light; the left pupil reacted when light was directed on to it from the inner or nasal side but it did *not* react when light was directed on to it from the outer or temporal side, thus showing that the inner half of the left retina was insensitive to light. This symptom is called the hemiopic pupil reaction and was first called attention to by Willbrand, and it shows that there is a lesion which is affecting the fibres in the optic nerve or tract somewhere between the retina and the centre for the contraction of the pupils in the corpora quadrigemina, and in this case it would show that besides completely abolishing the pupil fibres in the right optic nerve the lesion was pressing especially on the fibres in the chiasma which come from the inner half of the left retina. The external ocular movements were normal. The lower part of the right side of the face showed defective movement, but otherwise there were no paralysis and no alteration of the reflexes. The hands were noted to be large but it was doubtful whether he had true acromegaly. A diagnosis of tumour of the pituitary body was made and Sir Victor Horsley operated from the right temporal fossa in two stages and reached the pituitary body which was occupied by a cystic tumour which was scraped out and drained. With regard to this operation I would say that Sir Victor Horsley has now operated on ten cases of tumour of the pituitary body.

The third case was that of a man, aged 29 years, under the care of Sir William Gowers, who for seven years had his sight affected and which was getting worse for three and a half years when he stated that he began not to see properly with one part of each eye. He was dull, drowsy, and sleepy; his memory was bad and at times he was restless and had delusions. He complained of diminution of sexual power and for six months he stooped and walked slowly. His smell was deficient, so that he could perceive, but not recognise, odours, but his taste was good. He had bi-temporal hemianopia with diminished vision, R.V. = $\frac{6}{9}$. On the right side the vertical dividing line passed through the fixation point, a condition which is unusual in cases of hemianopia from a lesion of the occipital cortex, and on the left side there was considerable contraction of the nasal fields, with loss of vision at the fixation point. The optic discs were pale with primary atrophy. The pupils showed the hemiopic reaction—i.e., they reacted when light was thrown into them from the inner or nasal fields but scarcely at all when it came from the outer or temporal fields. The ocular movements were good, without nystagmus. There was fine tremor in both hands when they were held in front of him. There was no enlargement of the hands. At the operation a tumour of the size of a walnut was removed from the pituitary body by Sir V. Horsley.

The tumours which we have been considering are those that come within the powers of the surgeon to remove if their localisation can be sufficiently accurately determined and I now propose to bring to your notice some tumours of the basal ganglia which are presumably impossible to remove.

TUMOURS OF THE OPTIC THALAMUS.

I will take first tumours of the optic thalamus. This is a part of the brain of which the function is less known than that of other parts such as the cortex, but different symptoms have been described by various writers and these symptoms of lesions of the posterior part of the optic thalamus have been in the last year well put together by Déjerine and Roussy.[3] The chief symptoms are that voluntary movements are not much affected unless the internal capsule be involved, but involuntary movements and ataxia of the opposite limbs occur; the tendon or deep reflexes are slightly increased or are normal; the superficial reflexes are normal or absent, but the extensor plantar reflex (Babinski's sign) was not obtained in spite of the pyramidal degeneration which was present in some of the three cases on which the work is founded. Sensation was affected both objectively and subjectively; in the former all forms of sensation are involved but not absolutely and the loss is more marked at the periphery. Muscular sense and stereognosis, or the recognition of objects by the touch, are, however, completely lost. Subjectively there are severe pains in the limbs and hyperæsthesia, which is sometimes so severe as to prevent the use of the limb. Hemianopia occurs if the postero-inferior part of the thalamus be involved. The other special senses are not affected.

I have notes of three cases which were respectively under the care of Dr. H. Charlton Bastian, Sir William Gowers, and Dr. Ferrier. The first case was in the right optic thalamus but it also extended down into the right crus cerebri, and there were headache and vomiting and double optic neuritis, together with gradual weakness of the left arm, leg, and face, with some increase of the deep reflexes on that side. At first sensation was not affected but later there was left hemianæsthesia but apparently no hemianopia. The patient had several curious fits lasting half an hour and consisting of tonic rigidity of the left arm and leg. Mentally his memory was good but he was always falling asleep. Later he became comatose and had fits affecting both sides.

In the case under Dr. Ferrier the tumour occupied the whole of the left thalamus, especially its posterior part, and projected into the posterior part of the lateral ventricle, and also extended across the middle line to the right thalamus and back to the corpora quadrigemina. The patient was fatuous and suspicious and had numerous general fits, followed by hallucinations. There was no motor or sensory affection, but later there was right hemianopia.

In the case under Sir William Gowers the tumour was very large and involved the left thalamus and left internal capsule, spreading across to the right thalamus and down into the pons. The patient, a girl, aged 15 years, had fainting unconscious fits, with weakness and then anæsthesia of the right hand and later of the right leg. On admission there was slight right hemiplegia with right hemianæsthesia and right hemianopia with some ataxia of the right hand, a symptom of lesions about the optic thalamus which was described some years ago by Sir William Gowers, and increase of the deep reflexes and diminution of the superficial with extensor plantar reflex. In addition there was left ptosis but the ocular movements were normal.

The internal capsule lies so close to the optic thalamus that it is very difficult in the case of a tumour not to have the internal capsule involved or pressed upon, and consequently in two out of the three cases described above there were hemiplegia and hemianæsthesia, and in one case hemianopia. In one of the cases there were no hemiplegia and no hemianæsthesia and only hemianopia coming on later, and in this case it would be very difficult to make a diagnosis of optic thalamus as the symptoms might be caused by a tumour of the parietal or the occipital lobe.

A history therefore of a slow progressive hemiplegia with hemianæsthesia and hemianopia all on the same side, with fits of a general nature but without any localising symptoms such as numbness in one hand followed by epileptiform attacks, as we found to exist in tumours of the parietal lobe, would make a diagnosis of a tumour about the optic thalamus and the posterior limb of the internal capsule probable. In both the cases where the internal capsule was involved the plantar reflexes were extensor in character and not flexor as described by Déjerine and Roussy, and in none of the cases were there severe pains in the limbs. In one case ataxy of the paralysed side was observed.

While speaking of tumours of the optic thalamus I would refer to some cases occurring at the National Hospital which were attended by marked tremor and incoördination of the limbs and which have been found by Dr. Gordon Holmes[4] to be due to tumours of the part lying beneath or ventrally to the optic thalamus known as the red nucleus which receives the superior peduncle of the cerebellum.

TUMOURS OF THE CORPORA QUADRIGEMINA.

The first case is that of a man, aged 42 years, under Dr. Ferrier's care. Six months previously he had headaches, chiefly occipito-vertical, which continued for two months; he had had none since. There was giddiness, during which he felt forced to the left. There was a tendency to fall backwards or to step back, and he staggered, always deviating to the left. For one to two years the sight was getting slowly worse. The hearing was poor, with tinnitus. For three months he had had diplopia. There were no vomiting, mental changes, or fits, but his memory was poor. He was apathetic. As regards the vision the left eye was better than the right; well-marked recent optic neuritis was present. There was great impairment of the upward movement of the eyes. There was slight divergence of the visual axes, but the lateral movements were good. Downward movement of the right eye was defective. Convergence of the right eye was poor. The pupils were small and inactive to light and accommodation. In walking he deviated to the left, keeping his right shoulder in front and his head to the right. The deep reflexes were normal; the abdominal reflex was diminished on the left side. The plantar reflex was flexor. There was marked tremor in the left hand, like that of paralysis agitans. A tumour, a glioma, was found extending the whole length of the mid-brain from the posterior commissure to the valve of Vieussens, and the tumour involved both the anterior and the posterior corpora quadrigemina of the right side, and a process of growth was seen between the red nuclei—the termination of the superior cerebellar peduncles.

The next was a case under the care of Dr. T. Buzzard, in which the patient, a girl, aged six years, had two tuberculous growths on the right side, one in the anterior and to a less degree in the posterior corpora quadrigemina, and the other, a ventral tumour, occupying the right nucleus ruber. The onset was gradual and for five weeks the right eye was closed. For two weeks she had tremor of the left arm spreading to the right arm, and for ten days vomiting with drowsiness. She had headache for four days; her gait was much affected and she tended to fall to the left On admission the optic discs were engorged but the margins were clear. The pupils were unequal; the right was pear-shaped and larger than the left; there were no reaction to light and doubtful reaction to accommodation. There was marked paralysis of

[3] Le Syndrome Thalamique, Revue Neurologique, June 30th, 1906.

[4] Brain, 1904, p. 237.

the muscles of both eyes, especially of both third nerves, so that there were ptosis on both sides and no movements of the eyes except outwards and downwards with wheel motion (? superior oblique), and slight power of convergence on the left side. The facial muscles were weak on both sides; the tongue was protruded to the left. There was general stiffness of all the limb muscles; the head lay towards the left shoulder; the left limbs were weak, with coarse irregular tremor of both arms at all joints but more in the left than the right. The tremor occurred when the arms were at rest but not during sleep, and it was increased on volitional movement. When the patient stood up there was tremor in the left leg and she fell to the left in walking.

A case under the care of Dr. Ferrier, a man, aged 53 years, had left sided headache and two months before admission he suddenly fell down, was dazed and giddy, and the attack was followed by diplopia with staggering to the right. Another attack occurred two weeks later. On admission he had headache and vomiting but no optic neuritis. His speech was indistinct; he was drowsy but intelligent; he had diplopia. He had marked ocular symptoms, double ptosis, and marked paralysis of the lateral movements of the left eye with paralysis of the right internal rectus; the upward movement of the left eye was very feeble. The pupils were small, equal, and reacted extremely slowly to light. There were slight right facial weakness and progressive paresis of the right arm and leg. The left external pterygoid, temporal, and masseter were weak. There were anæsthesia and relative analgesia of the right face, arm, and leg. The right knee-jerk was absent and the left was feeble. The plantar reflex was flexor on both sides. A tumour (sarcoma) was found in the anterior corpora quadrigemina measuring one and a quarter by one and a half inches, not involving the posterior corpora quadrigemina, the crura, or the optic thalamus. The aqueduct of Sylvius was pressed upon.

According to Dr. Ferrier's observation and experiments on the corpora quadrigemina it would appear that these bodies are connected with the movements of the eyes and pupils, with vision, and with equilibration. In the three cases which I have brought before you in all of them there was marked paralysis of the movements of the eyes and especially of upward movement, and also absence of reaction of the pupils to light and in two cases to accommodation. As the corpora quadrigemina lie just above the nuclei of the third nerves, it is exceedingly difficult to say how much of this ocular paralysis is due to direct involvement of the corpora quadrigemina by the tumour and how much to the indirect pressure on the nuclei of the third nerves. Another symptom which is important in view of the association of these bodies with equilibration is that in three cases the patients are described as staggering towards the side which was opposite to the lesion. Therefore in a case which presents the general symptoms of tumour, marked paralysis of the ocular movements with fixation of the pupils and staggering to one side is in favour of a tumour of the corpora quadrigemina. These cases are often difficult to diagnose and we must remember that paralysis of the ocular muscles and fixed pupils are met with in cases of locomotor ataxia, but in these cases while there would probably be other symptoms of locomotor ataxy, they would not present the general symptoms of a tumour.

TUMOURS OF THE CEREBELLUM.

I would remind you that the cerebellum consists of two lateral hemispheres joined by a median portion called the vermiform process. We have therefore to consider tumours growing outside the cerebellum and compressing it and tumours growing within the cerebellum or, in other words: (1) extra-cerebellar tumours, and (2) intra-cerebellar tumours, divided into (*a*) tumours of the lateral hemisphere or lobe and (*b*) tumours of the vermiform process. We have, as in tumours of other parts of the brain, the three general symptoms, headache, vomiting, and double optic neuritis; and we have, further, the following localising symptoms: vertigo, pressure on cranial nerves (auditory, facial, trigeminal, sixth nerve), motor symptoms (on the same side as the lesion), such as weak conjugate movements of the eyes, nystagmus, paresis of the limbs and of the trunk muscles, loss of tone in the muscles, ataxy of movements, tremor, staggering gait, alteration of the deep reflexes, with normal superficial reflexes, and peculiar fits. Time will not permit me to mention the experimental work of Ferrier, Luciani, Risien Russell, and of others, or of the clinical work of Hughlings Jackson, Gowers, Alexander Bruce, Mills, Allen Starr, and others.

I have already enumerated above a general list of the symptoms of cerebellar tumours, and it will now be necessary to point out the different way in which these symptoms show themselves in extra-cerebellar and intra-cerebellar tumours. For this purpose I shall avail myself of the results obtained by Dr. Grainger Stewart and Dr. Gordon Holmes[5] who have written a paper based on a series of 40 cases of tumour of the cerebellum observed at the National Hospital, Queen-square. Of these cases, in 22 the diagnosis was confirmed by operation or by necropsy.

Taking, first, the extra-cerebellar tumours, we find that the majority of them grow from the flocculus or the auditory nerve in the anterior part of the posterior fossa. They are wedged in the angle between the cerebellum and the pons close up to the petrous part of the temporal bone and compress these structures without actually involving them. Occasionally we meet with cases in which the tumour lies more posteriorly in the cerebellar fossa of the posterior fossa and would compress the lateral lobe of the cerebellum and would give probably the same symptoms as an intra-medullary tumour of the lateral lobe. With this proviso I will refer to these tumours in the anterior part of the posterior fossa as extra-cerebellar growths and those within the lateral lobe of one side as intra-cerebellar tumours.

In both extra-cerebellar and intra-cerebellar growths the headache is severe, vomiting is nearly always present, and optic neuritis is, perhaps, more early in its appearance in intra- than in extra-medullary tumours. Of the localising symptoms, vertigo or giddiness is a frequent symptom in both forms of tumour. True vertigo is either a feeling that the patient has that objects are revolving round him or a feeling that he himself is revolving round his axis. Now, according to the two authors quoted above, in both forms of tumour the patient in the vertigo thinks that objects are going in the direction away from the side of his lesion; in other words, with a left-sided tumour the objects would seem to go from the patient's left to his right. With regard to the patient himself with intra-cerebellar tumours he seems to turn in the same way as the objects—i.e., from left to right—whereas in extra-cerebellar cases he seems to turn the opposite way—i.e., from right to left. Taking first extra-cerebellar tumours we find that compression of the cranial nerves, and especially of the auditory and facial nerves, is a very common symptom, as these tumours grow close to the internal auditory meatus where these nerves enter the cranial cavity, and as a result we get loss of hearing to sounds heard through the air, as well as those conducted by bone, also tinnitus, buzzing or switching noises; facial paralysis involving all parts of the face; occasionally the fifth nerve, the trigeminus, is pressed upon, and especially the sensory part, causing numbness, tingling, or loss of sensation of the face on the same side as the tumour; also in many cases paralysis of the sixth nerve with weakness of the external rectus; rarely the ninth, tenth, and twelfth nerves. This compression of the cranial nerves does not occur in intra-cerebellar tumours. Motor symptoms occur on the same side as the lesion. This shows itself in the conjugate movements of the eyes, so that there is difficulty in turning both eyes towards the side of the lesion, and this is attended by nystagmus, slow jerking movements when the patient looks towards the side of the lesion. This occurs in both forms of tumour, perhaps more in extra-cerebellar. In the limbs on the same side as the lesion in intra-cerebellar lesions there is diminished power, and in a few cases it was observed that the muscles of the spinal column, especially the erector spinæ, of the same side were weak. This paresis is more common in intra cerebellar cases. Associated with the hemiparesis there is loss of tone, so that the muscles of the limbs on the same side as the lesion are flaccid and flail-like, and the two authors I have quoted point out that though in locomotor ataxy this flaccid condition is associated with absent knee jerk in cerebellar tumour it is often combined with an increase of this reflex. They also mention a condition which is important—viz., that if a normal person executes a movement against a resistance which is suddenly removed he is able to prevent the movement being carried on by bringing into action the antagonist muscles, but in cerebellar tumours this power appears to be lost. Also ataxy

[5] Brain, 1904, p. 522.

is present in the paretic limbs which is not increased when the patient closes his eyes, showing that its origin is central and is not due to peripheral sensory changes as in locomotor ataxy.

Associated with incoördination is the condition pointed out by Babinski in the paretic limbs of the same side—viz., that the patient cannot rapidly pronate and supinate the forearm owing to a defective coördination of the muscles. I have myself seen this symptom in several cases of cerebellar tumour, but according to Stewart and Holmes it cannot be looked upon as pathognomonic of cerebellar disease. Both ataxy and this last symptom occur equally in the two forms of tumour.

According to the same two authors in extra-cerebellar tumours there are irregular tremors in both arms when they are horizontally extended, while in intra-cerebellar tumours they are absent. The peculiar reeling, staggering gait has been known for some time and it has been described especially by Dr. Hughlings Jackson. It is best likened to that of a person trying to walk on a rolling ship at sea, but with a tendency to go to one side more than the other. The difficulty has always been to determine to which way the patient tends to fall. According to the two authors mentioned above the patient tends to stagger and to deviate towards the side of the lesion and he would thus walk in a circle, but he knows his weakness and tries to counteract it by bringing forwards the shoulder on the same side as the lesion. Another way of testing which side is affected is to make the patient stand on one leg and then on the other and it will be found that he is more unsteady on the leg of the same side as the lesion. This walk occurs in both forms of tumour. In tumours affecting the vermis in the middle of the cerebellum the reeling is more uniform and the patients tend to fall backwards or forwards.

The condition of the reflexes is one of much importance and especially the knee-jerk. According to the same authors in extra-cerebellar tumours the knee-jerk is not altered, while in intra-cerebellar tumours of one side the knee-jerk on that side is, if anything, diminished, but this is very uncertain, and from the cases which I have seen I should not be disposed to think that any definite conclusion can be drawn. The superficial reflexes are not altered in intra-cerebellar tumours and I have myself never seen the extensor plantar reflex in pure cerebellar cases.

It must, however, be remembered that, in extreme pressure from an extra-cerebellar tumour on the pyramidal tract in the pons, paresis may occur in the limbs on the opposite side to the lesion, due to decussation of the pyramidal tract below, but when this is the case there will be some rigidity with increase of the knee-jerk, diminution of the superficial reflexes, and the extensor plantar reflex in the opposite limb.

Dr. Hughlings Jackson has described peculiar fits occurring in tumours of the vermis, with retraction of the head and arching of the back. I have in two cases at the Great Northern Central Hospital[6] seen this arching of the back with tonic contraction of the erector spinæ, but one of these cases was a hydatid in the posterior cornu of the right ventricle and both muscles were contracted, and the other was a case of chronic hydrocephalus in an adult and only the right erector spinæ was contracted; the contracture might have been caused by pressure on the vermis of the cerebellum.

The diagnosis of cerebellar tumours from cerebral is made by a comparison of the symptoms given above with those which were found to exist in tumours of the cerebrum. The absence of mental symptoms, of sphincter troubles (except at the end of the disease), and of epileptiform attacks, the presence of a reeling gait associated with deviation, say, to the left, with weakness of movements of the eyes to the left and paresis of the left limbs without alteration of the reflexes, would be in favour of an intra-cerebellar tumour of the left lateral lobe; while deafness and facial paralysis of the left side with conjugate weakness of the eyes and paresis of the limbs of the left side, and with weakness and rigidity of the right limbs, together with increased knee-jerk and extensor plantar reflex, would be due to an extra-cerebellar tumour of the left side.

Tumour of the pons at its lower part might be taken for cerebellar cases but in a typical case due to a lesion in the left half of the pons there would be complete paralysis of the left face, and perhaps left deafness, the eyes would be conjugately deviated to the right, and there would be spastic paralysis of the right arm and leg with increase of the right deep reflexes and extensor plantar reflex, and the paralysis would come on early and would not be preceded by a reeling gait.

There is one point with regard to the optic neuritis on which I should wish to say a word. Without counting the 40 cases of cerebellar disease described by Stewart and Holmes, who state that in the majority of the cases the swelling of the papilla was greater on the side of the growth, I find that out of 50 cases, which I have described to you, in 19 the neuritis was more intense in the eye on the same side as the lesion, in 11 cases more in the opposite eye, in 13 it was equal on the two sides or there was no note to say that there was any difference, and in seven cases there was no neuritis.

In conclusion, I would say that I have endeavoured to bring before you the symptoms which were associated with tumours situated in different parts of the brain, and if these symptoms are present it is possible in many cases to make a correct diagnosis; in some cases where there are no symptoms or where the symptoms are misleading it is not possible and I would refer you to an interesting paper by my colleague, Dr. James S. Collier,[7] who points out the false localising signs of intracranial tumours which may mislead the unwary—aye, and the wary too. It only remains for me to thank you for the kind attention which you have given.

[6] Brain, 1898, p. 299.

[7] Brain, 1904, p. 490.

ABSTRACT OF

The Morison Lectures

ON

INSANITY, WITH SPECIAL REFERENCE TO PROGNOSIS.

Delivered before the Royal College of Physicians of Edinburgh on Jan. 28th and 30th and Feb. 1st, 1907,

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LECTURE III.[1]

Delivered on Feb. 1st.

HAVING reviewed the clinical experience of 25 years from a statistical point of view, I shall now proceed to consider certain correlations between somatic and mental phenomena. There is no doubt just at present some disparagement of psychology in these studies and a sceptical attitude towards the assumed occurrence of a mental disorder without an operative physical cause, yet I cannot range myself with the opponents of psychology. For instance, by his researches into the phenomena of fatigue, Kraepelin has explained what was formerly obscure and improved the methods of education throughout Germany. Mental fatigue and bodily fatigue exercise the same effects upon the brain and it is a mistake to suppose that by altering the kind of fatigue reparative processes will be encouraged thereby. Italian observers have demonstrated the toxic nature of fatigue in the lower animals and we can precisely understand the process.

The age and health of the parents at the time of conception of offspring are of importance in the evolution of the race. I have recorded several instances of paternal drunkenness in this connexion, but the mere accident of one act of drunkenness is relatively unimportant compared with the habitual condition of the persons noted. Nor have I been able to discover any relation between the use of midwifery forceps and the individuals who have come under my care.

What is of real importance in the study of neuropathic children is the immediate ancestry, the environment, and the education which condition them. Dr. Dewey of Chicago has investigated the early life conditions in 200 sane and 200 insane persons. This comparative method elicits a series of facts which tend to confirm the observations which I have submitted. Briefly, whatever tended to eugenics

[1] Lectures I. and II. were published in THE LANCET of March 2nd (p. 572) and 9th, 1907 (p. 648), respectively. The lectures were illustrated by statistical tables, charts, and clinical observations.

found expression in the sane in a higher degree than in the insane. For instance, excessive use of alcohol, of tobacco, of tea, and of coffee appears more frequently in the insane families; tuberculosis, insanity, and malarial environment follow the same rule. Neglect and poverty, lack of home discipline, and defective schooling were all more apparent among the insane. In short, a neuropathic heredity was continued in a neuropathic environment and issued in a neuropathic generation.

The evolution of character, ability, temperament, and success has not been studied with that care which the subject demands. It is not sufficient to write around the great names. We know that the race tends to average abilities, with some slight advantage to the families of exceptionally able, *well-balanced*, intellectual parents. It is the kind of mistake to which I have already referred that exclusively considers the exceptional, the bizarre, and the extremes. For the determination of the probabilities of inheritance of any character, physical or mental, within normal limits or the possibilities of disease a study of the general population is absolutely necessary. The successes and the failures must be considered in detail. Professor Karl Pearson has found that the intensity of correlation between "want of mental balance" in parents and insanity in children is from 0·25 to 0·30, probably the same as exists in regard to other characters—e.g., stature, colour of eyes, and so on—thus showing, as might be expected, that somatic conditions are paramount in the first instance; however environment may possibly influence the organism in its growth and development. I plead that Professor Karl Pearson will have the support of the College in his endeavour to collect sufficient data for the further elucidation of this question, in the firm belief that the results will lead to a better understanding of the national requirements towards the attainment of health and efficiency.

As sleeplessness is the most invariable prodromal symptom of insanity, so it is of the greatest importance in the course of the malady, whether from the view of treatment or prognosis. The high pressure of the blood interfering with repose and nutrition is the chief disturbing factor. The whole endeavour of treatment must be bent towards the restoration of sleep not so much by the crude effects of narcotics as by the wider application of medical skill. It is not my purpose to touch upon treatment or nursing, nor is it necessary to insist on the importance of this point. The management of the insane at night is quite as important as their management by day and their conduct at night is just as indicative of their future as their conduct by day. The return of sleep is a sign of recovery or failure to recover—a good sign if improvement is concurrent in other directions, a bad sign relatively if there is no, or but partial, concurrence. For insomnia is not a symptom of chronic insanity. Excepting a few cases of chronic mania, a few of circular insanity in the excited phase, and especially of that class in which hallucinations are prominent or the cœnesthesia is greatly perverted, the old cases sleep soundly and are aroused with difficulty. This restoration of sleep bears a close resemblance to the increase of body weight. If the nutritive processes become active and there is a concurrence of other favourable signs the outlook is hopeful, but degeneration may go hand in hand with an unhealthy pallor and an undesirable, flabby corpulency accompanying permanent feeblement of mind.

When the somatic failure is general it is evident to the most casual observer. The chronic degraded patients of one asylum closely resemble those of their class in any other asylum. We cannot neglect the facial appearance of the patient in discussing the question of prognosis. It is characteristic of degradation, if degradation has declared itself. Apart from the emotional expression of the prevailing mental tone there is an immobile, listless, preoccupied appearance which augurs badly for the future. The nervous system is out of gear and the enfeebled muscles indicate that failure. The complexion is pallid and the skin shares in the general inefficiency. The eyes are relaxed and their mobility is restricted. Pigmentation of the skin is of evil omen, and if it is systematically picked by the patient one can hardly look for recovery. The morbid condition of the skin in insanity has not been sufficiently investigated as yet. The development of nervous system and skin from the point of view of embryology may in some measure elucidate these complications. In any case the extremes of harsh dryness in certain forms of melancholia and copious perspirations in certain forms of mania are commonly recognised. Also the greasy offensive appearance in degraded cases. Perhaps the most important cutaneous symptom from the point of view of prognosis is the pigmentation which so frequently occurs and which must be considered as indicative of a progressive and intractable disorder when it is unmistakable and long continued. The appendages of the skin are also affected. The state of the hair is a valuable index to the general condition.

The general nutrition, perhaps, is the most certain index of the progress of a case, as has been well brought out by the study of body-weight in recoveries and removals. In asylum life the periodical and exact weighing of patients is a routine practice generally adopted and generally trusted to indicate the variations in somatic conditions which are so important in the adoption of remedial measures suitable for each particular case; also as indicative of the earliest warnings of complications, such as tuberculosis. A restoration of lost body-weight, like a restoration of diminished secretions, is almost invariably one of the first signs of returning health.

The muscular system presents very many problems of interest apart from the pareses and paralyses of pathological insanity. The fumbling fingers of a general paralytic fail in muscular energy, in coördination, and in the guiding direction of the higher cortical centres. In lesser degree the finer adjustments of intention and action are discernible in ordinary insanity, and as the degradation deepens so the inability becomes declared. The somatic failure is then positive. But as a general rule it may be stated that the deeper the mental degradation the more obvious are the reflex defects, whether motor or mental. All cases displaying rhythmic, monotonous movements are to be regarded as most seriously damaged. In some cases these movements, apart from idiocy, have a gross pathological basis. The morbid condition of bones in the insane has long been recognised and I believe that the anæmic failure of the chronic insane is part and parcel of the osseous defect. I shall not venture to discuss questions of craniology, in reference to which palatal deformities are of importance in determining a neuropathic heredity in many cases where information is given reluctantly. A few words may be permitted in reference to oral sepsis and a common symptom of general paralysis—a persistent grinding of the teeth.

The gait of insane patients is characteristic: the bent, stiff neck, the downcast eyes, the untidy dress, the careless slouching walk, are all in various degrees indicative of somatic and mental degradation. Extraordinary attitudes impress one unfavourably. Often these are assumed by adolescents who may recover, but my experience is that they are symptomatic of relapse sooner or later. Alterations in handwriting and tricks of voice or speech indicate the interaction of mind and body in many important directions. Vain and purposeless repetitions of phrases in the letters of a person not appreciably insane are often evidence of chronic alcoholism and specially, I believe, of cocainism. In the case of a person tending towards chronic insanity such repetitions are a mark of incurability. The corresponding phrase of speech is not less ominous; still there is a lower grade—*echolalia*, in which there is a repetition of words heard by the patient and immediately reproduced, and lower still in the scale is *verbigeration*, in which new words are invented.

To resume, then, these various conditions of the organism betray each in its own relations, the generalised nature of insanity, the generalised defect and disorder in which the mental symptoms originate, and upon which they depend. Within the compass of these brief lectures it is impossible to discuss all the somatic conditions. I rather endeavour to indicate the trend of experience, and prefer to reserve the consideration of highly specialised subjects of importance, such as the work of Flechsig relative to the association fibres of the brain demands.

I now, therefore, attempt to correlate somatic disorders with the mental phenomena of insanity. It is generally recognised that prognosis will vary with the incidence of these disorders and diseases. If bodily health can be re-established there is hope of mental improvement and recovery. For instance, if there is no possibility of restoring a damaged cardio-vascular system the outlook is gloomy. Prognosis therefore must await the determination of these events. Of course, those with somatic stigmata generally tend to marked mental degeneration. It is necessary to read for hæmopoietic disorders, *anæmia*. The important variations of the blood, discoverable by modern methods, can, of course, find no place in old records. In the

cardio-vascular group it is important to note the depression and fears which are exaggerations of the usual features of these maladies. Gastro-intestinal cases are similarly affected. The great excess of the female sex under the heading of generative disorders is in accordance with general experience. I have not been able to corroborate certain American observations which record extraordinarily voluminous morbid details in the sphere of gynæcology. There can be no doubt that the urine and vaginal discharges of the insane are highly toxic, but the vast array of surgical necessities alluded to is not within my experience, either by the bedside or in the post-mortem room.

The common concomitant of generative disorder is the irregularity or suppression of the catamenia. It is usually said that menstrual periods are accompanied by exacerbation of insanity. That is by no means the rule according to my observations. No doubt the return of catamenia is a favourable indication and we have had several such cases after the exhibition of ergoapiol where other drugs had failed. I might also record a case of recovery in which the catamenia continued suppressed and were restored by the introduction of a stem pessary at home. Quite exceptionally, I have had good results from the use of ovarian extract after ovariotomy, but can present no case under asylum treatment in which that preparation altered the mental condition. It is our routine practice to record daily on calendars the excitement or depression noticeable in individual patients. These calendars also show the days of menstruation. I have condensed these observations for years together, and on examination of the results find that it is quite exceptional to correlate the catamenia with the exacerbations of insanity; occasionally this is discovered in mania but never in melancholia, so far as my observations go. What is of much more importance are the toxic conditions of these tracts—whether puerperal or not.

My aim has been to direct attention to somatic disorders and to correlate those with insanity under two broad divisions—ordinary and pathological. Yet it is necessary to say something in general terms. For instance, the primary fact of consciousness has a relation to prognosis; if it is lost for any considerable space of time it is a measure of mental degradation indicating incorrigible defect. Mere confusion is not at all a hopeless condition, but delirium is of the gravest import. I have not found that perversions of identity are so incurable as was formerly supposed; but as a general rule it may be stated that perversions relative to self are much less intractable than those relative to others. Did time permit, these opinions could be supported by clinical illustrations, but I must pass to the sphere of sensation. The general cœnasthenia is of importance in this connexion. It is a common measure of convalescence to observe carefully the mental attitude relative to fatigue. A loss of the sense of fatigue, an abolition of sensation in regard to fatigue, denotes an uninterrupted course of mental disorder; on the contrary, when the patient begins to complain of fatigue and pain and discomfort the complaint is welcomed as the first sign of improvement.

The sensations colour the delusions, and in that respect the study of Table XVI. is interesting. The genesis of delusions from the painful sensations of gastro intestinal disease is readily understood—it is easy to pass from the feelings of gastritis to the feelings of poisoning. In fact, I would venture on the generalisation that perverted sensations determine the tone of the delusions and the general mental condition. It is unthinkable that the depressing nature of abdominal disease, altogether apart from insanity, should issue in grandiose ideas or pleasurable excitement. It would seem that hallucinations can be an affair of auto-suggestion in some cases. The measure of degradation may be ascertained by observation of the power of attention and memory, yet these may be acute and the condition of the patient may be hopeless as regards recovery. It is commonly supposed that an unimpaired memory is an indication of sanity, yet the idiot *savant* may have a memory of extraordinary tenacity. The perversion of intellect may be complete and both attention and memory perfectly unimpaired.

In point of time, we have already seen that recent cases are most favourable in expectation of recovery and that cyclic variations are common; also that a sudden onset and a sudden recovery almost inevitably mean neuropathic inheritance and recurrence sooner or later. A settled periodicity is bad, yet if there are no remissions tending to recovery the outlook is not less gloomy. The best sign in this respect is intervals of remission, daily becoming of longer duration; and it is specially gratifying when self-knowledge returns, interest in surroundings is displayed, and neatness of dress is studied—in fact when there is an indication of an appreciation of the amenities of existence, when the prayer of the Kilbarchan weaver is answered—in moderation.

And so we inevitably come back to the initial stage of this discussion, the importance of somatic conditions in relation to the mental states. Prognosis in insanity must proceed upon a wide and careful review of the whole circumstances affecting the individual, who is in a degenerative condition physically and therefore mentally. All that goes to make up that degenerative condition must be separately investigated and summed up. The elements of prognosis are analytical and synthetical, and it is determined by the nature of the degree of the involvement of the organism in the widest sense. If all the functions are involved, if the degenerative process is universal and intractable, the future of the individual is desperate indeed; if the defect is partial and amenable to treatment naturally the case is more hopeful as these limitations of involvement decrease. In that sense how hopeless is the case of pernicious anæmia in which the mental manifestations are the direct result of an impoverished brain. For a time it may be possible to draw upon the reserve of red blood corpuscles but the stock is not inexhaustible. It is in consonance with these observations that the toxic theory of insanity demands our most serious attention and excites our liveliest hopes. Prognosis can never be an affair of aphorisms; these *obiter dicta* require to be fitted into the general scheme of things; they are altogether too facile and too partial for our purposes.

Finally, on the general question of prognosis of insanity, we have been counselled to give a guarded opinion, because it is the unexpected that happens. An eminent physician once said that he was paid for an opinion, not for a prophecy. But an opinion is truncated and ineffective if it be only relative to the moment of delivery. The questions demanded of us are urgent and necessary: Is the family business to be wound up, are the pressing difficulties permanent or temporary, is the home life to be altered for a time or for ever, are careful plans for a career to be abandoned or postponed? I am impatient with a science that executes a strategic retreat before such a battery of questions. In the last resort, the kindly words of Horace recur to us:

> "Tu ne quæsieris, scire nefas, quem mihi, quem tibi
> Finem di dederint, Leuconoe, nec Babylonios
> Temptaris numeros."

Yet it is a poor account of scientific medicine if it is to be recorded of us that our premonitions are of no more value than a Chaldean horoscope.

It is an excellent practice in which throughout the years I have followed Sir James Crichton-Browne, to sum up the probabilities in the case-book on the reception of every patient. At least, it is a stimulating corrective for self-satisfied science; at best, an incentive to the careful study of every circumstance affecting each patient. For it is only by that study, indefatigable and personal, that advance is possible to us or to our profession. More steadfastly than ever our profession labours for the prevention of disease. That resolves in questions of eugenics, education in the widest sense, and a determined, informed study of all morbid phenomena.

THE MEDICAL TREATMENT OF CONGENITAL PYLORIC STENOSIS.[1]

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THE symptoms and diagnosis of congenital pyloric stenosis are now well known and have been very fully described by Thomson, Cautley, Still, and others. The exact pathology of the affection is still unsettled and it may be that the results of treatment will throw fresh light on the subject. This paper deals only with the medical treatment by means of dieting and gastric lavage, a method of treatment to which Still has specially directed attention.[2] I propose to give brief notes of the last three cases which have come under my

[1] A paper read before the Clinical Society of London on March 8th, 1907.

[2] THE LANCET, March 11th, 1905, p. 632.

care and then to make some observations on the treatment generally.

CASE 1.—A male infant, six weeks old, a first child, was sent to me on May 22nd, 1906. The history was that the child had appeared to be healthy at birth but that vomiting occurred during the first week and had continued ever since. The vomiting was intermittent, sometimes only once a day, sometimes oftener, and usually occurred about 20 minutes after a feed. The vomited material was sometimes in large quantity and was violently pumped out. The child was losing weight steadily; the bowels were very constipated and acted only after the use of a glycerine suppository. The motions were small but healthy in appearance. The child was subject to flatulence, attacks of abdominal pain, and screaming attacks. He was always hungry and always ready for a feed. The diet had been the mother's milk and occasionally Allenburys food and peptonised milk had been tried and had been rejected. The breast milk when examined was found to be satisfactory, although the chief constituents were rather small in amount (proteids, 1·75 per cent.; fat, 2·4 per cent.; and sugar, 5·06 per cent.). The patient was a wasted, whining, unhappy looking infant weighing 7 pounds 6 ounces. On examination of the abdomen, after manipulation, the stomach was seen to be contracting strongly and peristaltic waves passed from the left to the right side of the abdomen. The pylorus was not felt. On the same night general convulsions supervened and lasted intermittently for 36 hours but passed off under the use of bromide and chloral rectal injections. The treatment ordered for the pyloric trouble was lavage once a day and a continuance of the breast feeding every two hours by day and every four hours at night, ten minutes at a time. On washing out the stomach a considerable amount of soft flocculent curd was removed, but this seemed to be of such a fine character that gastric digestion was evidently good. It was also considered that such a residue should pass easily through the pylorus unless abnormal spasm was present. The child remained under observation for three weeks during which the progress of the case was as follows. The lavage was carried out every day for the most part, sometimes every second day. The amount of residual food left in the stomach was found steadily to diminish. The vomiting became much less frequent and less violent, and towards the end of the time was trifling. The bowels came to act naturally without injections, and at times diarrhœa with green stools occurred. The employment of malt and oil, half a drachm thrice daily, seemed to produce gastro-intestinal disturbance. The child became much more comfortable and brighter with the cessation of the abdominal pain and vomiting. The weight at the end of three weeks was exactly the same as at the beginning. The infant then passed from my care and was treated on the same lines by a medical friend for a few weeks. Four and a half months later the following report was very kindly sent me by the practitioner under whose care the child had been placed. Steady improvement had taken place, interrupted only by a series of convulsions, which had been traced to the fact that the mother was menstruating at the time. The gain in weight was very slow but the infant now weighed ten pounds—i.e., almost three pounds heavier than when first seen. The weaning process was being carried out as the mother's milk was failing. The visible peristalsis of the stomach had passed off entirely two months previously.

CASE 2.—A male infant, three months old, was sent to me on Oct. 12th, 1906. He was healthy at birth, weighing 7½ pounds, and had been fed on cows' milk and water, which seemed to agree with him. At the age of five weeks vomiting had commenced and had persisted. It occurred once or more daily and was frequently very violent, the food being pumped out in large quantity. The bowels had been rather loose at first but later constipation had been marked, and for a month previous to my seeing the child the bowels had acted only after a glycerine suppository and the motions had been extremely small. The child slept badly, had frequent attacks of abdominal pain, and was always ravenously hungry. There had been a steady loss of weight going on for about two months. Many diets had been tried, including cows' milk and water, Mellin's food, peptonised milk, lacto, whey, and Allenburys food, but none of these had had more than a temporary effect on the vomiting. The child had been fed quite regularly every two and a half hours by day and somewhat less frequently by night. On examination the infant was found to be extremely emaciated and restless; he was whining, and he looked a picture of misery. His weight was then 6 pounds 13 ounces. The temperature was normal. There was no sign of disease anywhere apart from the stomach. The abdomen was somewhat distended and gastric peristalsis was elicited by rubbing the abdominal wall. The contraction waves were very strong and passed right across from under the ribs on the left side to be lost on the right side of the abdomen. They were not apparently painful. The pylorus was not felt by me, but my friend Dr. Edmund Cautley, who kindly saw the case with me, was able to palpate it. As the infant was at the time on Allenburys food that diet was continued, and washing out of the stomach was performed daily. The vomiting rapidly diminished but complete digestion as ascertained by the results of washing out was not obtained until the feeding was employed every hour by day and every two hours by night. The bowels soon began to act naturally and a steadily increasing amount of fæcal matter was present in the stools. The gain in weight was at first very slow and some weeks showed a loss of weight. The diet was varied with whey, peptonised milk, and cream, and a small quantity of malt extract, raw meat juice, and grape juice was given. The improvement was steady if slow and there was a definite change for the better in the infant's comfort and general appearance. The progress was interfered with at times by attacks of diarrhœa and later by an attack of influenza with bronchitis. The patient passed out of my care at the end of three months and was then a smiling active infant, keenly interested in all that went on, and weighed 9 pounds 6 ounces, a gain of two and a half pounds. The gastric lavage was still being carried out every second day as the influenza had left the infant very liable to gastric disturbance. Had it not been for this complication the washing out would probably not have been required so frequently.

CASE 3.—A male infant, three months old, was admitted to hospital on April 20th, 1906, suffering from marasmus. The child had been healthy at birth, but vomiting had come on a fortnight later and had continued. The diet had consisted entirely of the breast milk but wasting had been persistent. The bowels were constipated, acting only every second day, and there had never been diarrhœa. There was nothing of importance in the family history and the patient had presented no signs of constitutional disease. On admission the infant was found to be a typical example of "marasmus," very wasted, whining, always hungry, and sucking his fist. The rectal temperature night and morning was 96° F. The weight was six pounds. On physical examination the abdomen was found to be rather distended and tense and an inguinal hernia was present, but there were no signs of organic disease. A diet of equal parts of cows' milk, barley water, and lime water, half an ounce of each, was ordered, the feeding to be every two hours by day (16 hours) and every four hours by night (eight hours). At the end of 24 hours the quantity at a feed was raised to three ounces. After three days half a drachm of cream was given thrice daily. Under this treatment the child seemed to improve, gained six ounces in weight in ten days, and seemed more comfortable. The amount of cream was then increased to half a drachm at each feed and this was quickly followed by vomiting. On returning to the former amount of cream the vomiting ceased. On May 9th it was noted that although the bowels only acted once a day and enemata were sometimes required, the motions were satisfactory. The infant, however, was losing weight, although without any obvious discomfort or vomiting. Three-ounce feeds of milk and lime water, equal parts, every two hours by day and every four hours by night, with half a drachm of cream and 15 drops of cod-liver oil thrice daily were ordered. Vomiting quickly followed and continued. On the 14th examination of the abdomen showed marked peristalsis of the stomach in waves passing from left to right and a diagnosis of congenital hypertrophy of the pylorus was made. Washing out the stomach daily was ordered. The food was now changed to peptonised milk and water and later cream, whey, plasmon, and plain milk-and-water were given at times. The amounts varied from three to four ounces at intervals of three or four hours. The washing out was continued daily and there soon came to be but a small residue present in the stomach two hours after a feed. When, however, it was reduced to every second day a considerable amount of food was found and the daily routine was resumed. The vomiting was entirely relieved and occurred very rarely and in a very mild form. At the end of three months' treatment the weight was 6 pounds 11 ounces, a gain of only 11 ounces. The peristalsis of the stomach after a

feed was as marked as ever. The temperature ranged between 96° and 97°. Treatment by opium had been given a full trial, up to seven minims of liquor opii sedativus daily, without the slightest effect. After consultation operative treatment was decided on. The operation of stretching the pylorus was performed by one of my colleagues on July 28th. A typical large, hard, contracted pylorus was found. The only point about the operation which calls for notice is that the peritoneum was ruptured at the duodenal end of the pylorus and was sutured. The infant suffered from a good deal of shock during the following few hours but improved after saline infusions. Rectal feeding was employed for 12 hours and then one drachm of whey in an ounce of hot water was given every three hours. The amount of whey was steadily increased. On August 1st it was noted that there had been no vomiting for three days; the child was taking food well and seemed comfortable. The addition of malt or cream induced vomiting and whey alone was given. On the 3rd the child did not take food so well and he died suddenly and unexpectedly on the same night. At the necropsy the abdominal conditions were found to be healthy, there was no peritonitis, and there was no apparent cause of death. This sudden and unexplained death in marasmic infants after a serious operation is, of course, of common occurrence. The question as to whether better methods of feeding and other food materials might not have led to a cure of the pyloric condition without operation must remain unsettled, but further experience has led me to believe that the treatment might have been improved upon.

Remarks on treatment.—I shall not refer to the surgical treatment of this affection, a subject which was very thoroughly considered at the Toronto meeting of the British Medical Association.[3] My hope and belief are that as our knowledge and experience of the medical treatment advance there will be fewer and fewer cases in which surgical intervention is called for.

1. *The objects aimed at.*—The aim of the medical treatment is to remove any source of irritation in the stomach which may maintain pyloric spasm and to keep the stomach free from any irritating food material, digested or undigested, which may excite pyloric spasm. Within recent years many cases of this affection have been seen in the post-mortem room, and as we looked at the hard hypertrophied tissue and the complete stenosis it was a common remark that only operative treatment could have relieved the condition. It must be remembered, however, that the pylorus has two functions, contraction and relaxation, and the fact that the muscular tissues generally are hypertrophied is no reason for assuming that only the power of contraction is retained. I believe that both these functions are present at birth and that there is in addition a congenital hyperplasia of the muscular tissues of the pylorus, as Cautley has so strongly insisted on. For a varying length of time, days or weeks in different cases, all goes well and the pylorus acts normally. But a time comes, even in the most carefully fed cases, when some irritating (undigested) food lies in the stomach and the pylorus contracts strongly and remains closed. Vomiting follows. The repetition of such a condition gradually induces a more or less continuous spasm of the pylorus, or at least a spasmodic contraction which seriously interferes with the normal emptying of the stomach. It may be that in some cases, as in those recorded by Willoughby Gardner, and Still, it is possible solely by careful dieting and the use of a food leaving little residue in the stomach to check this over-action of the circular fibres of the pylorus. Such cases are probably rare but they support the view that there is no inherent vice in the pylorus. They are rare because a diagnosis could seldom be made at a stage when such treatment would usually be effective. By the time a diagnosis can be made with certainty the spasm of the pylorus is established and as the result hypertrophy and dilatation of the stomach have followed. We have then to deal with a fastidious, irritable, dog-in-the-manger pylorus, which must be humoured and soothed and deferred to in every way. It is not to be supposed that even in marked cases the pylorus never relaxes. At operations it has frequently been found that the hypertrophied pylorus can and does relax and will often admit the little finger without difficulty. In many cases the presence of fæcal matter in the stools and the absence of vomiting for a week or more show that food is passing through the pylorus. The gravity of the affection lies in the fact that it does not do so in sufficient quantity for the nutrition of the infant. These would appear to be the grounds on which medical treatment may be expected to do good and, expressed in other words, the aim of the treatment is to restore the function of relaxation of the pylorus which has been in abeyance owing to the more powerful action of the constrictor muscular fibres.

2. *The food and feeding.*—Although the stomach is much dilated and is capable of holding a large amount of food, small feeds are called for in order to secure complete digestion. Two or three ounces will be found sufficient at a meal and in bad cases one-ounce feeds are advisable. In order to supply a sufficient amount of nourishment the number of meals must be increased. An infant, aged one month, should be fed every two hours day and night and in bad cases, when only small quantities are allowed at a time, every hour by day. This may have to be carried on for some months unaltered but if the progress of the case allows of it one will naturally try to increase the amount at a meal and feed less often as time goes on. If the infant will sleep for longer intervals at night he should be allowed to do so but hunger will usually awake him with great regularity. Small quantities, from one drachm to four drachms, of plain water or dill water or cinnamon water may be given between the feeding times if the child is thirsty or wakeful. The difficulty in the complete digestion of the food in the stomach lies in the proteids and the fats, more especially the latter. Over and over again I have found the addition of cream or cod-liver oil bring on gastric irritation and vomiting.

If good breast milk is available it is the best food. A chemical analysis of the milk should be made and one would prefer to have rather a low amount of all the chief solids. The fat should not be more than 3 per cent. The quantity given at a time must be regulated by the duration of the feed, five or ten minutes as the case may be. Unfortunately, in many of these cases one finds that suckling has been stopped in the belief that the milk was disagreeing with the child and one of the most useful adjuncts in the treatment is lost.

If artificial feeding is employed, cows' milk as usually modified does not act well owing to the heavy curds which remain in the stomach. The foods which have proved most successful in my experience are peptonised cows' milk (without added cream), whey, and Allenburys food (No. 1). This last I take as a type of foods which are not in themselves suitable for healthy children, but which are capable of very complete digestion in the stomach. In addition, malt extract, raw meat juice, and grape juice have been given daily in small quantities. No doubt other foods may be found equally efficacious and the question of the suitability of the food is to be decided by the state of the stomach contents after washing out.

3. *Gastric lavage.*—The stomach should be washed out once a day for a prolonged period, and in bad cases this proceeding may be required twice daily for a time. It is quite a simple process in young infants, and if properly carried out leads to no discomfort or disturbance. It should be done when under normal conditions the stomach is empty—i.e., two, or two and a half hours after a meal, as the case may be. The value of the information gained from the nature of the stomach contents cannot be over-estimated. The wash-out should show a small amount of soft flocculent matter, which tends to get less in successful cases as time goes on. If, on the other hand, a large amount of matter is washed out, or undigested curds, it is clear that the food is not properly digested and will maintain the pyloric spasm. Dr. Cautley has pointed out that in many cases the mere washing out of the stomach systematically will check the vomiting and that this may prove misleading. This is perfectly true, and therefore one must examine carefully the nature of the stomach contents in order to see whether the residue would be likely to pass the pylorus. If this residue is of the soft flocculent nature described above one may reasonably expect that it can, and will, prove non-irritating, and will eventually pass naturally through the pylorus. Other indications of improvement must also be looked for and will be referred to later. For the observation of these points and for the lavage to be of any real value it is of the first importance that the physician should carry out the proceeding himself and not entrust it to any nurse however skilled and experienced she may be. Gastric lavage is not only beneficial to the infant but is also the means of showing the physician how to regulate successfully the food and feeding.

[3] Brit. Med. Jour., vol. ii., 1906, p. 939.

4. *Signs of progress*.—1. The vomiting ceases. This usually follows quickly after lavage and suitable feeding have been carried out. 2. The bowels act naturally. This is a very important sign of progress, for it is in such marked contrast to what occurs in untreated cases. In the latter constipation is the rule, artificial aids per rectum being very often required, and the motions contain little fæcal matter. After the medical treatment has been begun the bowels act two or three times a day without artificial stimulation and the motions are larger and consist of fæcal matter. 3. The stomach peristalsis becomes less marked, less strong, and gradually passes off. The complete disappearance of peristalsis may take some weeks or months, but the lessening is usually seen early in successful cases. 4. The discomfort, pain, apathy, and constant whining of the infant are removed and are replaced by a placid and comfortable state, in which even smiling is gradually evolved. 5 The nutrition of the infant is improved. This is manifested in a healthier colour, in increased activity of the limbs, and in a slow gain in weight. It is very important to remember that these infants cannot be fattened rapidly, that any attempt to secure this will probably end in disaster, and that the less weighing there is the better, especially if there are anxious relatives about. The most suitable foods are not fattening ones, and any excess of food is apt to produce disturbance either in the stomach or the bowel. On the other hand, the vital powers of the infant can be very much improved, and the disordered functions restored to healthy action, by a simple diet, and the fattening materials can be reserved to a later period. Progress in the infant is usually marked by a slow increase in weight, somewhat fluctuating at first, but tending to become steady as time goes on.

5. *Complications*.—A common complication in the course of treatment is diarrhœa. The bowel in such cases has been out of use for some time and is consequently unprepared for the food material which now passes through the pylorus. Hence probably arises an irritative form of diarrhœa. The best treatment is to reduce the amount of food given by one half and to keep it so until the diarrhœa has ceased. At the same time half a grain of grey powder may be given twice or thrice daily. When the diarrhœa ceases the amount of food can be again gradually increased. Such diarrhœa is always serious and may prove fatal. When vomiting occurs no food should be given for two hours in order to rest the stomach. Sips of hot water may be given if the child is thirsty. Intestinal flatulence is to be treated, like diarrhœa, by a temporary reduction in the amount of food.

6. *Medicinal treatment*.—The use of anti-spasmodic drugs such as opium and the bromides has not proved of the slightest value in my experience. Of course, infinitesimal doses of opium cannot be expected to do any good, but I have pushed the drug to its full physiological effects without any benefit whatever. Nor does it appear likely that the drug would have any special action on the circular fibres of the pylorus and fail to affect the longitudinal fibres to an equal extent. In cases of marasmic infants suffering from this affection, with all the tissues dried up, the use of saline injections both subcutaneously and per rectum has seemed beneficial. From four to ten ounces of normal saline solution can be given daily and will act as a restorative until the improvement of the pyloric function allows of the entrance of a sufficient amount of fluid into the system by the natural route. In cases in which the infant is much reduced or has a subnormal temperature brandy, up to half a drachm daily, will be found of service as a general tonic. The administration of cod-liver oil by inunction, if it be of any value, would appear to be specially suited to the conditions present in this affection. I have only employed it once and in that case a skin eruption quickly followed and led to its discontinuance.

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PASSMORE EDWARDS COTTAGE HOSPITAL, LISKEARD.—The annual meeting of the subscribers to this hospital was held on Feb. 26th. The medical report stated that 78 in-patients and 30 out-patients had been treated during 1906, being the highest number on record. The financial statement showed a small favourable balance. The committee decided to elect all the members of the medical profession in the town as honorary members of the staff, with Dr. R. H. Lucy as honorary consulting surgeon, Mr. J. R. Rolston as honorary ophthalmic surgeon, and Mr. W. H. Lyne as honorary dental surgeon.

ON TERTIARY SYPHILITIC FEVER AND THE VISCERAL AND OTHER CHANGES CONNECTED WITH IT.

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A GOOD deal has been written on the subject of fever, especially protracted fever, in tertiary syphilis,[1] but my attention was first directed to the subject by Mr. Campbell Williams and by the patient himself whose case Mr. Williams described at the Clinical Society in 1900 as "A Case of Late Syphilitic Pyrexia (Intermittent Essential Fever of Syphilis)."[2]

The first patient, a married woman, aged 36 years, was under my care at the German Hospital from May 1st to June 17th, 1906, and again from August 27th to Sept. 10th, 1906. She had previously been under my care at the Mount Vernon Hospital. The patient's husband, a fairly healthy-looking man, admitted that in 1893 he had a sore on his penis. He was only three or four weeks under treatment for it and as far as he knows there were no secondary symptoms. (The husband's history was not, however, obtained till the clinical evidence of syphilis in the patient's case was conclusive.) The patient had had no children since 1893, but of the two children born previously one was living and healthy and the other died in infancy. She had had no miscarriages. She had certainly been accustomed to indulge somewhat freely in whisky. Up to 1900 she enjoyed fair health but about that time a good deal of the hair of her head came out and she began to suffer from depression, languor, occasional vomiting, and occasional night-sweats. About 1902 she had "rheumatism," principally in her knees. In December, 1904, she first brought up blood and became subject to nausea, vomiting, and inability to take food. In 1905 she occasionally brought up blood (hæmatemesis or hæmoptysis); usually she first coughed and then vomited, the vomiting being followed by bringing up the blood. There was no history of jaundice. From childhood she had often had sore throats. She dated her present deafness from 1905. In August, 1905, sores formed about her left ear which were preceded by lumps. From Dec. 1st, 1905, to March 7th, 1906, she was in the Mount Vernon Hospital. On admission she was found to have considerable enlargement of the liver and spleen, pains in the lower extremities, and an irregular type of fever, occasionally over 102° F. On two occasions (Dec. 4th and Jan. 8th) she was said to have had coloured expectoration, but no definite signs of any disease in the thoracic organs could be discovered except some dulness at the base of the right lung corresponding to the enlargement of the liver. On one occasion I noted that the liver and spleen were hard, had a

[1] See Sidney Phillips, A Case of Syphilitic Fever resembling Tertian Ague, Brit. Med. Jour., Nov. 30th, 1889, p. 1217; J. H. Musser, The Diagnostic Importance of Fever in Late Syphilis, University Medical Magazine, Philadelphia, October, 1892, p. 6; E. G. Janeway, Danger of Error in Diagnosis between Chronic Syphilitic Fever and Tuberculosis, American Journal of the Medical Sciences, September, 1898, p. 251; D. W. Prentiss, A Case of Syphilitic Fever, Philadelphia Medical Journal, July 29th, 1899, vol. iv., p. 215; A. C. Morgan, Syphilitic Fever, Philadelphia Medical Journal, Feb. 17th, 1900, vol. v., p. 360; C. Gerhardt, Syphilis einiger innerer Organe, Berliner Klinische Wochenschrift, Nov. 12th, 1900, p. 1046; T. B. Futcher, Syphilitic Fever with a Report of Three Cases, New York Medical Journal, June 22nd, 1901, p. 1065; F. Klemperer, Ueber Fieber bei Syphilis der Leber, Zeitschrift für Klinische Medizin, Berlin, 1904, vol. lv., p. 176; A. Birt, The Fever of Late (Visceral) Syphilis, Montreal Medical Journal, October, 1906, vol. xxxiv., p. 748; L. D'Amato, Sulla Febbre Sifilitica Terziaria, La Riforma Medica, Naples, March 10th, 1906, No. 10, p. 253. Both Birt and D'Amato refer to many papers on the subject. F. Klemperer also alludes to observations by G. Klemperer, C. A. Ewald, and others. J. S. Bristowe (Clinical Society's Transactions, London, 1886, vol. xix., p. 249) and T. D. Savill (Clinical Journal, London, Dec. 1st, 1897, p. 87) have both drawn attention to the occurrence of chronic hectic fever connected with gummatous disease in congenital syphilis. One of the earliest authors to draw attention to the possible occurrence of a hectic type of fever in tertiary as well as in early syphilis was C. Bäumler who whilst still in London wrote a paper, Ueber das Verhalten der Körperwärme als Hülfsmittel zur Diagnose einiger Formen Syphilitischer Erkrankung, Deutsches Archiv für Klinische Medicin, Leipsic, 1872, vol. ix., pp. 397-432. Fever up to about 102° F. is mentioned in H. Weber's account (Transactions of the Pathological Society of London, 1866, vol. xvii., p. 152) of a case of very extensive tertiary syphilitic disease in the liver, lungs, bronchial glands, dura mater, cranium, and sternum. J. E. Güntz, a pupil of Wunderlich, was the first to make accurate thermometric observations on the fever of the early stages of syphilis, the occurrence of which was already known to John Hunter.

[2] Transactions of the Clinical Society of London, 1901, vol. xxxiv., p. 28.

fairly even surface, and were not painful or tender. They gave me the impression of being more or less adherent to the abdominal wall and I had little doubt of the existence of perihepatitic adhesion. On Jan. 9th, 1906, treatment by mercurial inunction and the internal use of potassium iodide was commenced, with the result that on the 12th she had no fever and the fever remained absent from that date till the treatment was discontinued on the 29th. On Feb. 3rd the fever recommenced and antisyphilitic treatment was not then regularly carried out as the patient appeared to be suffering from follicular tonsillitis with glandular enlargement on the left side of the neck. The fever, however, which was of a hectic type, persisted, and early in March typical gummatous disease with perforation of the soft palate having developed renewed antisyphilitic treatment was started on March 4th. On March 6th she remained free from fever but unfortunately left the hospital on the following day.

On May 1st, 1906, the patient, looking very cachectic, was admitted under my care at the German Hospital and treatment by intramuscular injections of salicylate of mercury, together with the internal use of potassium iodide and Zittmann's weak decoction, was at once commenced. On May 1st and 2nd the evening temperature reached 100° and 102° F. respectively, but after that there was no more fever till she left the hospital on June 17th. She quite lost the cachectic appearance and gained considerably in weight. The ulcerated perforation of the soft palate soon began to have healthy edges and had certainly contracted by the time she left the hospital, but the liver still remained enlarged, the edge being felt three fingers' breadth below the costal margin in the right nipple line.

On August 27th she was readmitted to the German Hospital under my care suffering from tertiary syphilitic periostitis over both tibiæ and about the left elbow-joint, &c. Ophthalmoscopic examination showed a few foci of chorioretinitis in both eyes (Dr. C. Markus). The evening temperature was 102°. Potassium iodide and Zittmann's decoction were given and on August 28th (the day after admission) treatment by intramuscular injections of salicylate of mercury was again adopted. Rapid improvement in the periosteal affection followed the commencement of the treatment and there was practically no fever from August 30th till the patient left the hospital on Sept. 10th. Perchloride of iron was likewise administered. I saw her again on Jan. 27th, 1907, when she told me that on Jan. 20th at about 3 P.M. she had vomited about one and a half pints of dark blood. In spite of this attack of hæmatemesis she looked fairly well, and she had apparently enjoyed fair health since she left the hospital.

This case on four different occasions illustrates remarkably rapid disappearance of the fever on the commencement (within two days or so) of antisyphilitic treatment. The fever in February, 1906, was of a hectic type and one can easily understand that tertiary syphilitic pyrexia may be mistaken for septic fever, or may be supposed to be due to pulmonary tuberculosis, especially when, as in the present case, a history of blood-spitting and night-sweats can be obtained. Chronic hectic fever accompanied by occasional night-sweats and blood-spitting has sometimes doubtless led to a suspicion of pulmonary tuberculosis, even in the absence of any physical signs pointing to local disease in the lungs. Moreover, slight differences in resonance between the two sides, such as are often found on examining the chests of quite healthy individuals, have probably sometimes been interpreted as confirming a suspicion of consumption. It is easy to find (or to imagine) slight physical signs to support a diagnosis of lung disease suggested by hectic fever, emaciation, progressive weakness, &c.

E. G. Janeway[2] wrote in 1898 a well-known paper on the Danger of Error in Diagnosis between Chronic Syphilitic Fever and Tuberculosis. C. Gerhardt[4] alluded to three cases of hepatic syphilis in which the presence of hectic fever led to a diagnosis of pulmonary tuberculosis. The three patients were sent to sanatoriums for consumption, but were afterwards cured by antisyphilitic (mercurial) treatment. A. Birt[5] says that the fever of late syphilis may be occasionally associated with chills, night-sweats, and emaciation, so as to simulate tuberculosis, sepsis, or malaria, but especially tuberculosis. In his case it was only when a tender node on one rib was detected that the patient admitted having contracted syphilis 11 years previously. In regard to the employment of the tuberculin test Birt concludes that it is of little value for distinguishing the syphilitic from the tuberculous cases and may be risky. Indeed, the repeated sharp rises of temperature and occasional rigors in many cases of syphilitic fever make tuberculin altogether unreliable for diagnostic purposes and, as a matter of fact, owing to the presence of fever, its employment is, in my own opinion, absolutely contra-indicated.

F. Klemperer[6] mentions having seen a young man with a remittent type of fever who had been treated by tuberculin, &c., for pulmonary tuberculosis seven years after primary syphilis, and in whom mercurial treatment removed the fever. He likewise quotes Veress[7] as describing the case of a woman with pulmonary syphilis and recurrent ague-like attacks of shivering and fever. She was first supposed to have malaria and then pulmonary tuberculosis, but the appearance of a gumma on the leg led to the recognition of the syphilitic origin of her illness and to its speedy cure by antisyphilitic treatment.[8] Fever is, however, no more a necessary accompaniment of pulmonary syphilis than it is of hepatic syphilis.

Sidney Phillips[9] in 1889 pointed out that syphilitic fever might easily be mistaken for malaria. His case had definite ague-like chills and resembled tertian fever. There were, apart from what seemed to be erythema nodosum, no definite local lesions, but the symptoms yielded promptly to antisyphilitic treatment. One of Futcher's three cases[10] of syphilitic fever was characterised by intermittent chills with fever and was treated first as a case of malaria, but afterwards yielded readily to antisyphilitic treatment. Veress[11] quotes a case of Eckert, of Tientsin, in which tertiary syphilitic fever was accompanied by shivering attacks and enlargement of the spleen so as to simulate a form of malaria. Confusion with malaria is, of course, most likely to occur in malarious countries and when the spleen is enlarged and when there are definite attacks of shivering.

Needless to say, typhoid fever, malignant endocarditis, and febrile cholelithiasis may all be thought of in cases of tertiary syphilitic fever. One of the cases recorded by Futcher[12] was for weeks suspected of being a case of typhoid fever and was treated as such, but the correct diagnosis was established by the discovery of periosteal thickening over the clavicles and by the cessation of the fever after the beginning of treatment with potassium iodide. The presence of "tertiary syphilitic diarrhœa"[13] in such cases would still further increase the clinical resemblance to typhoid fever. Definite clinical signs of valvular disease may, as is well known, be absent for a long time in cases of malignant endocarditis, and syphilitic fever of intermittent or remittent type might be mistaken for early malignant endocarditis before the development of a definite murmur; such a mistake would be more likely to occur if there happened to be an old valvular lesion present, of rheumatic origin or from any other cause, or if a so-called "anæmic" or other murmur not due to organic valvular disease were to be heard.[14]

The occurrence in tertiary syphilis of enlargement of the liver, with local tenderness due to perihepatitis, and accompanied by pyrexia, shivering attacks, and a certain degree of jaundice, might make one think of cholelithiasis and its complications. In one of G. Klemperer's[15] cases of tertiary syphilitic fever accompanied by enlargement and tenderness of the liver with some jaundice an operation to search for a hepatic abscess was to have been undertaken, but antisyphilitic (mercurial) treatment was tried and led to rapid and complete cure. J. S. Bristowe,[16] in the case of a boy, aged 15 years, with hectic fever and hepatic enlargement, twice explored the liver with trocar and cannula (hoping to find an abscess) before evidence of congenital syphilis was obtained; antisyphilitic treatment led within four days to the cessation of the fever, which had lasted

[2] Loc. cit. [4] Loc. cit. [5] Loc. cit.

[6] Loc. cit., p. 185.

[7] Pester Medizinisch-Chirurgische Presse, 1904, Nos. 22 and 23.

[8] On Fever in Cases of Pulmonary Syphilis see also A. Stengel, Syphilis of the Lungs simulating Pulmonary Tuberculosis, University of Pennsylvania Medical Bulletin, May, 1903, p. 89.

[9] Loc. cit.

[10] T. B. Futcher, loc. cit.

[11] Loc. cit. [12] Loc. cit.

[13] See later references to the rare cases in which tertiary syphilis is accompanied by obstinate diarrhœa.

[14] Cf. Paul Krause: Ueber langdauernde Fieberzustände unklaren Ursprungs, Deutsches Archiv für Klinische Medicin, Leipsic, 1905, vol. lxxxiii., p. 129. Krause speaks of cases of protracted fever due to malignant endocarditis and mentions that chronic fever of obscure origin may be due to tertiary syphilis.

[15] Therapie der Gegenwart, January, 1903, p. 41.

[16] Loc. cit.

two months and had been accompanied by occasional rigors and night-sweats.

In my patient the enlargement of the liver and binding down (perihepatitis) of the organ were doubtless partly the result of local tertiary syphilitic processes, though alcohol may likewise have had a share in the causation. It is noteworthy in what a large proportion of cases of tertiary syphilitic fever there have been signs of liver disease. In each of L. D'Amato's[17] three cases of fever (eight to 16 years after the primary infection) there was evidence of hepatic complication; in his first case there was perihepatitis, in the second there was probably a gummatous change, and in the third there was jaundice. A. Birt[18] thinks that it is chiefly in cases in which the syphilitic process affects the liver that late syphilitic fever occurs. F. Klemperer[19] describes two cases of chronic fever of an intermittent type accompanied by shivering attacks in which no organic changes could be detected, except in the liver (enlargement, tenderness, and slight jaundice). The diagnosis seemed to lie between obscure suppuration (septic fever), tuberculosis, and malaria, until the possibility of a syphilitic origin was thought of; antisyphilitic treatment led to a rapid cure in both cases. He points out that the intermittent type of fever with enlargement of the liver and occasional shivering attacks was likewise present in cases described earlier by G. Klemperer,[20] C. A. Ewald,[21] and others. C. Gerhardt, who was well acquainted with febrile cases of syphilis of the liver, writing in a paper on the subject in 1900,[22] said that though most patients with hepatic syphilis were free from fever, in some cases the hepatic affection was accompanied by fever which simulated other diseases, though the satisfactory results of antisyphilitic treatment proved it to be due to the syphilis. Even the recent hæmatemesis in my case may possibly be due, not to ordinary gastric ulcer or hepatic cirrhosis (dilated veins in the stomach or œsophagus), but to syphilitic disease of the stomach. A. Cesaris-Demel[23] has narrated the case of a man who died suddenly from intra-peritoneal hæmorrhage which the necropsy showed to proceed from a perforating syphilitic ulcer of the stomach. Though it must be acknowledged that undoubted syphilitic gummatous disease of the stomach and intestines is rare a good many cases have been verified by post-mortem examination or by the results of treatment.[24]

In tertiary syphilitic "dyspepsia" and tertiary syphilitic diarrhœa the result of antisyphilitic treatment may be very striking. In the out-patient department of the Mount Vernon Hospital I saw on Jan. 18th, 1902, an extremely cachectic-looking young woman, aged 26 years, with gastro-intestinal symptoms. Some time before coming to the hospital she commenced to suffer from anorexia and vomiting after meals and she had lost flesh and strength. She had had diarrhœa for about a month and on drinking a little milk she would vomit or have a diarrhœal motion. I gave bismuth at first without any great benefit, but on Feb. 1st the presence of periosteal nodes on the tibiæ, which were tender to the touch, made it clear that she was suffering from active tertiary syphilis; moreover, there was a history of previous pains in the head, back of the neck, and extremities worse during the night. 30 grains of potassium iodide and some quinine were given three times daily. A good effect was felt in regard to pains after about three doses, and she rapidly recovered her appetite and cheerfulness; she could sleep well and walk well, and began to look in blooming health. Unfortunately in this case, as the woman was an out-patient, there is no record of the temperature.

A man, aged 37 years, a German sailor, was admitted under my care at the German Hospital on Jan. 17th, 1907. He was cachectic-looking and suffered from fever, chronic swelling and stiffness of the right elbow-joint, and tender nodes on various bones. The history was that as a soldier in 1890 he contracted a hard chancre on the penis, for which he seems to have been treated with mercury. He does not recollect the appearance of any secondary eruption. In 1897 he was under my care at the German Hospital with fever and a polyarticular joint affection which I then regarded as acute rheumatism. The patient had, however, likewise inflammation of the left epididymis and testicle; on one occasion I noted some tenderness at the junction of the sixth left costal cartilage with the sternum, and there was a tender swelling between the tibia and fibula of the right leg. I thought also of the possibility of there being a syphilitic element in the case, although apparently at that time I was not aware of the patient having had a chancre. It may be specially noted that the treatment included the use of iodide of potassium, besides sodium salicylate and quinine. About two and a half years (1904) ago he suffered from ulceration of the palate (which led to perforation), and also from headache and fever, for which he was treated with benefit by potassium iodide in a hospital at Rotterdam. A little while afterwards the present affection of the right elbow-joint commenced with pain and swelling. About one year ago he had an abscess to the outer side of the right eye, which left a depressed scar. On admission to the German Hospital in January, 1907, the patient presented undoubted evidence of recent and past tertiary syphilitic trouble. There were an old perforation of the hard palate, old scarring of the soft palate, and the depressed cicatrix (already mentioned) close to the right eye. The original cause of the chronic swelling, stiffness, and tenderness of the right elbow-joint would not by itself have been obvious, but there were tender swellings on the eighth right rib, on the right clavicle, and on the manubrium sterni, all of which suggested active tertiary syphilis; moreover, the patient said that on several previous occasions he had suffered from swellings on the ribs which disappeared again. A chain of enlarged lymph glands from the right elbow upwards along the brachial artery could be felt and did not seem to be tender. There was no evidence of disease in the thoracic and abdominal viscera, excepting slight impairment of resonance over the upper right part of the thorax (this was possibly, however, connected with the disease of the right clavicle) and slight enlargement and tenderness of the liver. The urine was free from albumin and sugar. Examination of the blood (not till Jan. 29th) gave: hæmoglobin (by Haldane's method), 58 per cent. of the normal; red cells, 3,575,000 per cubic millimetre; white cells, 6440. There were no retinal or choroidal changes. The patient was treated by mercurial inunction (five grammes of the mercurial ointment of the German Pharmacopœia daily) and was given an iron medicine internally. Some of the tenderness, at least that of the rib, sternum, and liver, disappeared, but the swelling of the right elbow and the tenderness of the right clavicle persisted. The anæmia diminished, so that on Feb. 10th the red cells numbered 4,200,000 per cubic millimetre, white cells 10,250, and hæmoglobin (by Haldane's method) about 73 per cent. of the normal. The temperature, which had been 100°–101° F. on the first three evenings, remained after that mostly below 100°, but the fever did not quite disappear. The mercurial inunction was discontinued on Feb. 11th and from the 21st the evening temperature was never below 100° until 15 grains of potassium iodide were given three times daily. The iodide was prescribed on the 26th; on the evenings of the two following days the temperature was 101°, but on the next three evenings it was only 99·4°, 98·2°, and 97·8° respectively. From March 1st small doses of arsenic and iodide of iron were given as well as the iodide of potassium. It is not surprising that the fever was somewhat resistant to the inunction in this case, since Roentgen photographs

[17] L. D'Amato (of Naples), loc. cit.
[18] Loc. cit.
[19] Loc. cit.
[20] Therapie der Gegenwart, January, 1903, p. 41.
[21] Ibid., February, 1903, p. 92.
[22] Loc. cit.

[23] A. Cesaris-Demel, Sulla Sifilide Gastrica a Tipo Ulcerativo, Archivio per le Scienze Mediche, Turin, 1899, vol. xxiii., p. 269.

[24] In regard to tertiary syphilitic affections of the stomach and intestines see E. Fraenkel, Zur Lehre von der acquirierten Magen-Darm-Syphilis, Virchow's Archiv, 1899, vol. clv., p. 507; L. Galliard, Entéropathies Syphilitiques, Presse Médicale, Paris, January, 1897, p. 37; A. Cesaris-Demel, loc. cit. (this author refers to a good deal of previous literature on the subject); H. Chiari, Ueber Magensyphilis, Festschrift Rudolf Virchow, Berlin, 1891, vol. ii., pp. 297–321 (Chiari refers to much previous literature); A. Fournier and L. Lereboullet, Diarrhées Syphilitiques Tertiaires, Gazette Hebdomadaire, Paris, July 8th, 1900, p. 637; G. Haven, Syphilis Stomacale, Presse Médicale, Paris, Feb. 18th, 1905, p. 105, and May 2nd, 1906, p. 277; A. Weiss, Die syphilitischen Erkrankungen des Darmes, Centralblatt für die Grenzgebiete der Medicin und Chirurgie, August, 1902, p. 577; Max Einhorn (New York), Bericht über einen neuen Fall von Syphilitischer Magengeschwulst, Münchener Medicinische Wochenschrift, Dec. 2nd, 1902, p. 2005; Hueter, Ueber Darmlues, a paper read at a meeting of the Altonaer Aerztlicher Verein on Oct. 18th, 1905, reported in the Münchener Medicinische Wochenschrift, 1906, No. 6, p. 284; J. M. Eider, Acute Intestinal Obstruction caused by Syphilitic Ulceration in the Ileum, Brit. Med. Jour., May 7th, 1904, p. 1068; W. Soltau Fenwick, Syphilitic Affections of the Stomach, THE LANCET, Sept. 23rd, 1901, p. 835; Suarez de Mendoza, on Syphilis of the Intestine, at the International Medical Congress, Lisbon, April, 1906, THE LANCET, May 5th, 1906, p. 1270.

(March, 1907) of the right elbow and of part of the chest point to there being extensive gummatous disease of the right clavicle and lower end of the right humerus.[25]

Gummatous disease of periosteum and bone is certainly at times associated with fever. T. D. Savill[26] has recorded a fatal case of congenital syphilis in a boy, aged 15 years, with extreme cachexia simulating pernicious anæmia, the necropsy showing gummatous masses over the frontal portions of the brain and gummatous disease of the petrous bone, ribs, and clavicle. In Savill's case the pyrexia was of an intermittent type, rising to 100°-102° in the evenings. Although my cases showed obvious changes in the abdominal viscera or bones, there may doubtless be cases of long-continued, apparently "idiopathic," pyrexia, in which on examination no signs of organic disease can be found to account for the fever, but which may really be connected with tertiary syphilitic changes in the viscera in situations where such changes would escape detection by the ordinary methods of physical examination. In January, 1906, I saw a man, 45 years of age, who had suffered from primary and secondary syphilis in 1889. He had been treated at Aix-la-Chapelle in 1898 and about 1902. He had suffered from evening fever (100°-101°) for about five months from July, 1905, but this fever had just disappeared on his voyage home from India. He complained of a little discomfort in the hepatic region, but I could find no physical signs of any disease, except slight wheezing over the lungs, and there was a history of asthmatic symptoms. I regarded the chronic pyrexia as being very likely connected with his syphilis and the medical man at Aix-la-Chapelle, to whom at my advice he went for another course of antisyphilitic treatment, thought that it was connected with perihepatitis. It is very probable that in some cases of tertiary syphilitic fever the fever may cease without antisyphilitic treatment, just as gummatous disease may in some cases heal up without any specific measures being adopted. L. D'Amato[27] writes amongst his conclusions that syphilitic fever may cease spontaneously without specific treatment, but then, just like the other syphilitic manifestations, it is more likely to recur. I have lately been looking over some notes of a case of a long-lasting pyrexia of unknown origin in which recovery ultimately took place but in which I regret that antisyphilitic methods were not given a fair trial. The patient, a man then aged 54 years, was admitted under my care on Nov. 15th, 1898, with a history of four weeks' illness and the fever, which was of intermittent or remittent type and associated with rigors, lasted till Dec. 21st. Malarial parasites were not found in the blood and he did not react to quinine and no satisfactory explanation of the fever was forthcoming. He had some œdema of the lower extremities, crepitations at the bases of the lungs, temporary slight enlargement of the liver, and superficial glossitis; there was a history of a chancre ten years years previously. This man was again temporarily under treatment in March and April, 1899. He then had slight jaundice, with crepitations at the base of both lungs and decided dulness at the base of the right lung. But on that occasion there was scarcely any fever (the temperature never reached 100° except on the first evening) and the jaundice and the pulmonary signs readily cleared up. At present (1907) I hear that he is in fairly good health.

Harley-street, W.

[25] The red corpuscles have now (March 12th) increased to 5,000,000 in the cubic millimetre and the patient has quite lost his former appearance of cachexia. There has been no fever since March 1st.

[26] Loc. cit. [27] Loc. cit.

A RADIOGRAPHIC SURVEY OF 170 CASES CLINICALLY DIAGNOSED AS "COLLES'S FRACTURE."

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STATISTICS regarding any disease or injury are always of interest and value to medical men, especially when the figures are based on the careful observation of a relatively large number of cases, and among fractures probably no single one possesses such a widespread interest among the profession as that of the lower end of the radius close to its articulation with the carpus, which is generally known, after the surgeon who first described it, as "Colles's fracture." Until the advent of the x rays it will be remembered that many points regarding it were the subjects of considerable controversy, such as the distance of the line of fracture from the carpal border or the character of the displacement. Before 1895 we were never taught that damage to the styloid process of the ulna was a common accompaniment of this injury; in the several books published in the pre-Roentgen ray days which I have consulted it is not even mentioned. This is not surprising when we consider the necessary imperfections of clinical examination and also the fact that the opportunity for making a dissection seldom arose. Roentgen's discovery has changed all this, and thanks to the work of Lynn Thomas and others new and valuable evidence has been forthcoming.

Considering the large amount of material available at the hospital with which I have the honour to be connected, it seemed advisable to make an attempt to obtain some more or less reliable data, and accordingly instructions were given to the receiving room officers to send all cases diagnosed as Colles's fracture to be radiographed—preferably before being put up. This was carried out as systematically as possible for about 12 months, and it was in only a comparatively few cases—those arriving between Saturday evening and Monday morning, when the radiographic department was closed—that the radiograph was taken while the dressing was in place. Owing to the large amount of practice obtained by the receiving room officers before and during their term of office, their skill in diagnosis may be taken as at least equal to that of the profession generally, and it may also be taken that in every case the history, signs, and symptoms, so far as could be elicited, pointed to the presence of this form of fracture. The radiographic procedure presented no special features. By screening one-half of the plate with a piece of sheet lead it was easy to get an anterior and an ulnar view side by side on a 8½ by 6½ inches plate. Considerations of economy in both time and plates prevented other views being taken, and for the reason that in an ulnar view it is difficult, and in many cases impossible, to get a side view of the line of fracture of the radius the amount of accurate information available from the present series is not complete. A side view of the wrist with the radius next the plate, under ordinary arrangement of apparatus, involves a more or less constrained position to a person suffering from this fracture, and it is thus very difficult to avoid some movement during the period of exposure. To overcome this difficulty I have devised a support for the wrist, plate, and tube with which it is not necessary to move the forearm while the two exposures are being made. For the radial side view the plate is placed vertically and the tube is lowered to the same level as the wrist which lies comfortably upon its support.

The preparation of a second series of cases in this way is now in progress, the results of which I propose to publish as soon as complete, and it is hoped that 200 cases may be collected within a reasonable time.

In making up Table I. it should be mentioned that a

TABLE I.

PART 1.

Total number of cases examined, 170.

The radius only fractured	155 cases.
The ulna only fractured	2 ,,
Both bones fractured	7 ,,
Fracture of the trapezium	1 case.
No fracture detected	5 cases.
Dislocation of the wrist-joint complicating fracture	3 ,,
Fracture of the styloid process of the radius	20 ,,
Fracture communicating with the wrist-joint	25 ,,
Fracture of the styloid process of the ulna	88 ,,
Separation of one or both epiphyses	11 ,,

PART 2.

The line of fracture of the radius—

Transverse	120 cases.
Oblique	13 ,,
Irregular	4 ,,
Obliquely transverse	3 ,,
Transverse, but line irregular	22 ,,

The average distance of the line of fracture from the carpal border—

¼ inch	2 cases.	¾ inch	11 cases.
½ ,,	16 ,,	1 ,,	2 ,,
⅝ ,,	31 ,,	1¼ inches	1 case.
¾ ,,	62 ,,	1½ ,,	1 ,,
⅞ ,,	17 ,,		

Displacement of the lower fragment of the radius—	
Inwards	3 cases.
Outwards	7 ,,
Forwards	7 ,,
Backwards	60 ,,
Outwards and forwards	2 ,,
Outwards and backwards	11 ,,
Inwards and backwards	2 ,,
Impaction without comminution	67 ,,
Comminution without impaction	12 ,,
Impaction and comminution	21 ,,

separation of the epiphysis is counted as a transverse fracture and also that damage to the styloid process of the ulna is not counted as a fracture of that bone. Of the total number, 155 consisted of fractures of the radius only, but two cases occurring in which the ulna was alone fractured. In seven cases both bones were fractured, while in one other the only injury that could be detected was a fracture of the trapezium. No fracture could be detected in five cases; in one of these there was some lipping of the carpal border of the radius due to osteoarthritis. Separation of one or both epiphyses occurred in 11 of the cases and three were complicated with a dislocation of the wrist-joint. The styloid process of the radius was cracked off in 20 cases, and this injury accounts for practically all those where the line of fracture was oblique, as well as for some of those which are described as "transverse but line irregular." Further, in all of these 20 cases the line of fracture ran into the joint. The wrist-joint was involved in 25 cases. This number includes the 20 cases above referred to and also some where the line of fracture was "irregular" or where there was comminution of the lower fragment. The frequency with which the styloid process of the ulna is torn off wholly or in part is very remarkable, occurring as it does in more than half the total number of cases. If we take those cases where the radius only was fractured to constitute "Colles's fracture" this process is damaged more or less in 85 of the 155 cases, or 55 per cent. This percentage, however, will be found too low for injuries which are strictly "Colles's fractures," since amongst the 155 cases are included several of the styloid process of the radius and others which are not true "Colles's fractures."

Part 2 of Table I. refers to the lower end of the radius. Out of the 162 cases in which this bone was broken the line of fracture was transverse or approximately at right angles to the line of the shaft in 120, or 74 per cent. In all of those where the line of fracture was oblique, the line ran across the base of the styloid process and communicated with the joint. In those described as "irregular" there was considerable smashing of the end of the bone with no definite line in any particular direction. In two of those described as "obliquely transverse" the line of fracture lay across the bone obliquely without involving the joint. Among those where the fracture was "transverse but line irregular" were several in which the line was more or less curved with the convexity of the curve looking downwards. The average distance of the line of fracture from the carpal border was measured in all cases—those where the line was oblique and leading into the joint not being included in the table of measurements. The rapid rise in numbers from two at one-eighth of an inch to 62 at half an inch is very interesting, as is also the more rapid fall after this point is passed. It will be seen that in no less than 111 out of a total of 155 cases the line of fracture is half an inch or less from the carpal border, just over 71 per cent., while in 31 only is the distance over half an inch—20 per cent.

In Erichsen's "Surgery," tenth edition, 1895, p. 598, it is said: "Gordon, who gave great attention to the mechanism of this fracture, states that in 27 old specimens examined by him the line of fracture posteriorly varied from ¼ inch to 1¼ inch, and anteriorly from ⅛ inch to 2 inches above the carpal border of the radius, being in ten 1 inch and under, in ten more than 1 inch, and in the others indefinable." It is interesting to compare these statements with the present series of fractures near the wrist where, out of a total of 155, in only two is the line of fracture over one inch above the carpal border.

The state of the lower fragment was a fertile source of discussion in the pre-Roentgen ray days. In the present series it will be seen that as regards displacement this takes place in a backward direction more than twice as often as all the other displacements taken together. In a large number of the cases there was no material displacement shown in the radiograph and in many of these there was impaction of the upper into the lower fragment. Impaction was present in 88 cases—nearly 57 per cent.—21 of these being accompanied with comminution—comminution without impaction occurring in 12. Displacement upwards has not been recorded in this series. A certain amount always takes place when the lower fragment is displaced and tilted backwards, and also there is, of course, some shortening with impaction of the upper into the lower fragment. In none of the cases was there displacement upwards, such as occurs in a case of fracture of the middle of the shaft of the femur.

It will be remembered that in all the 170 cases such history and signs as could be elicited gave reasonable supposition of the existence of "Colles's fracture," and Table I. is valuable in showing what conditions may simulate this injury at times. Several of the cases are, of course, not "Colles's fractures," and in Table II. an attempt has been

TABLE II.

An Analysis of Radiographic Negatives Prepared from 150 Cases of Colles's Fracture.

The line of fracture—			
Transverse	110 cases.		
Oblique	12 ,,		
Irregular	3 ,,		
Obliquely transverse	3 ,,		
Transverse but line irregular	21 ,,		
The distance from the carpal border—			
⅛ inch	2 cases.	⅝ inch	11 cases.
¼ ,,	14 ,,	1 ,,	2 ,,
⅜ ,,	29 ,,	1¼ inches	1 case.
½ ,,	61 ,,	1½ ,,	1 ,,
⅝ ,,	16 ,,		
Displacement of the lower fragment—			
Outwards	6 cases.		
Inwards	3 ,,		
Forwards	7 ,,		
Backwards	82 ,,		
Outwards and forwards	2 ,,		
Outwards and backwards	10 ,,		
Inwards and backwards	2 ,,		
Impaction without comminution	66 ,,		
Comminution without impaction	10 ,,		
Comminution and impaction	21 ,,		
Dislocation of the wrist complicating fracture	2 ,,		
Fracture of the styloid process of the radius	19 ,,		
Fracture communicating with the wrist-joint	24 ,,		
Fracture of the styloid process of the ulna	81 ,,		

made to prepare an analysis based only on such of the cases as conform to this injury. For this purpose only those where there was fracture of the lower end of the radius alone were taken, ignoring among others fracture of both bones and also separation of one or both epiphyses which leaves a total of 150 cases. This includes 11 cases where the line of fracture ran across the base of the styloid process of the radius communicating with the joint and having no displacement worth noting, certainly none that could have been detected clinically. This number can be deducted from the total and also from the figures relating to the styloid process of the radius and those of the fractures communicating with the wrist-joint if it is felt that they should not be included when calculating percentages, but it must be remembered that they were "Colles's fractures" from the clinical point of view.

My best thanks are due to the receiving-room officers and to the assistants in the electrical department for their kind assistance in collecting these cases.

Queen Anne-street, W.

NOTE ON THE USE OF ACETO-SALICYLIC ACID IN RHEUMATIC ENDO-PERICARDITIS.

BY EDWARD C. B. IBOTSON, M.B. LOND.

THE patient whose case is now described was in the third week of her third attack of rheumatic fever when I was called to her on Nov. 3rd, 1906. She was nearly 16 years of age, thin and anæmic, with very dark hair and irides. There was no family history of rheumatism. The joints were not much affected. Loud pericardial friction sounds with well-marked to-and-fro bruit masking an endocardial presystolic bruit were heard. There were well-marked dulness and tubular breathing below the left scapula

and rhonchi in the right chest posteriorly. The pulse and respiration were rapid. The urine was scanty, high-coloured, but non-albuminous. Constipation and obstinate insomnia were present. There was great tenderness of the spine and especially of the cervical spine. There were incipient bedsores over the sacrum. I ordered farinaceous diet. A bed-rest was provided and oxide of zinc powder was used for the sacral region. A cantharides plaster, measuring two inches by two inches, was applied over the second left intercostal space. A powder consisting of ten grains of Dover's powder and two grains of calomel was taken at bed-time and a mixture containing sodium salicylate and potassium iodide was given three times a day. The temperature, pulse-rate, and respirations recorded at 1 P.M. from Nov. 1st to the 6th were respectively as follows: on Nov. 1st, 102° F., 120, and 40; on the 2nd, 101°, 120, and 40; on the 3rd, 100°, 120, and 32; on the 4th, 100·4°, 120, and 36; and on the 5th, 101°, 120, and 40. On the 6th the temperature was 100°. On the 7th it was 101° and the pulse rate was 130; at 9 P.M. 15 grains of aceto-salicylic acid were given which produced a profuse perspiration during the night. On the 8th the temperature was 98° and the pulse-rate was 112; the blisters and the Dover's powder were continued for the relief of the insomnia and cardiac distress. On the 10th the temperature again rose to 101° and 15 grains of aceto-salicylic acid were given at night. On the 12th the temperature dropped to normal and did not again rise. Aceto-salicylic acid in doses of seven grains three times a day was continued till Nov. 19th and iodine paint was applied over the posterior chest. The friction sounds, the dulness, and the pulmonary congestion gradually disappeared. On Nov. 20th a mixture containing 10 grains of hæmoglobin, two minims of liquor strychninæ, and 10 minims of tincture of strophanthus was given three times a day and this was continued for some weeks, when she was attacked by inflammation of the posterior cervical glands which caused temporary wryneck. Hot fomentations and iodide of iron subdued this complication. At the present time (February, 1907) the anæmia has almost gone, the patient is able to get about, and the only trace of her illness is a loud presystolic murmur, indicating well-compensated mitral constriction.

The case seems to point to the superiority of aceto-salicylic acid in rheumatic fever, in certain cases when a salicylate has had a good trial, but the value of the blisters and opium must not be overlooked. Moreover, the hæmoglobin appears to be less likely to produce relapse than iron salts in combating the subsequent anæmia. I have had evidence also of the superiority of aceto-salicylic acid since then in (1) a stout woman, aged 41 years; (2) a man, aged 35 years; and (3) a boy, aged nine years, all of whom failed to respond to a salicylate. I have found a salicylate aggravate epistaxis which in my experience is not by any means an uncommon concomitant of rheumatism and is probably due to the accompanying anæmia. It is important that the aceto-salicylic acid should not be given in tabloid form unless the tabloids are crushed before administration. The powder suspended in water with a little mucilage acts well and has no unpleasant taste.

I have not found aceto-salicylic acid produce headache or dyspepsia, but I think that it is contra-indicated in chronic rheumatism occurring in the subjects of organic heart disease of non-rheumatic origin. The "Medical Annual" for 1904 quotes Georges (*Berliner Klinische Wochenschrift*) as pointing out that aceto-salicylic acid is of value in all forms of rheumatism, whether in the joints, the heart, or the muscles; and in chorea. As regards price, it is now sold at 4*d*. per ounce, or 4*s*. per pound, whereas physiologically pure sodium salicylate is 3*s*. per pound, so the difference in price is not prohibitive.

Great Dover-street, S.E.

THE ROYAL INSTITUTION LECTURES.—Among the lectures to be delivered at the Royal Institution after Easter are the following: Malaria, Sleeping Sickness, Tick Fever, and Allied Diseases, by Professor G. H. F. Nuttall; Spectroscopic Phenomena in Stars, by Mr. H. F Newall; Chemical Progress (Mendeléeff and Moissan), by Professor Sir James Dewar; Studies in Magnetism, by Professor S. P. Thompson; and Scientific Work in the Sea Fisheries, by Professor W. C. McIntosh. Lectures will also probably be given by Sir James Crichton-Browne and Professor J. A. Fleming.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Observations on a Case of Chyluria Occurring in England, with a Report of the Post-mortem Examination.

A MEETING of this society was held on March 12th, Mr. J. WARRINGTON HAWARD, the President, being in the chair.

Dr. ARTHUR F. HERTZ read a paper on Observations on a Case of Chyluria occurring in England, with a Report of the Post-mortem Examination. He said that the patient was a sailor, aged 66 years. When admitted into Guy's Hospital, under the care of Dr. G. Newton Pitt, in October, 1906, he had been passing milky urine for nine months. In that period he had lost nearly two stones in weight and had been occasionally troubled with difficulty in micturition due to intravesical clotting of his urine. The patient was in India for a short time 20 years before the onset of the disease. In eight of the 33 collected cases of chyluria of supposed European origin the patients had been in some tropical country many years earlier, and only 17 were specifically stated never to have been in the tropics. This suggested that some of the cases of supposed European origin were due to an old filarial infection, but no filariæ could be found in the blood or urine of this patient. The fat in the chylous urine was present in "molecular" condition, similar to the condition in which fat was found in chyle. Leucocytes were invariably present, but no red corpuscles or casts were found. Fibrin shreds were always present, but during the period of observation the urine never clotted into a gelatinous mass, as it had done before the patient's admission into hospital. No creamy layer formed on standing or after centrifugalisation. On warming a membrane formed on the surface similar to the "skin" of heated milk. The opacity of the urine was due entirely to the presence of fat which dissolved in ether after addition of sodium carbonate. Protein was invariably present in the chylous urine but dextrose was never found. The chylous condition of the urine disappeared spontaneously for a week during October; no cause could be discovered either for the disappearance or the reappearance. A second disappearance of the chyluria occurred immediately after a cystoscopic examination, which was made eight days before death, and the chyluria did not return. A diet as free as possible from fat resulted in the complete disappearance of fat and protein from the urine if the patient rested after meals. Excess of protein or carbohydrate had no effect at all on the urine. Fat in the food gave rise to chyluria. The first trace of fat and protein in the urine occurred as early as 33 minutes after the fat had been eaten. With a full diet the maximum amount of fat appeared in the urine five hours after the meal and the last traces disappeared in eight hours. The exact variations produced in the urine by changes in diet were studied by comparing hourly specimens of urine, and photographs of two series of specimens showing the influence of diet were taken. It appeared probable that the fat in the urine came directly from that in the food and not from the stores of fat in the body. For the first time the influence of exercise on chyluria was clearly shown. Chylous urine appeared sooner after a meal and more fat was present if exercise was taken than if the meal was followed by rest. If a fat-free diet was given and exercise was taken "lymphuria" resulted; serum-albumin, serum-globulin, fibrinogen and fibrin flakes, and leucocytes were present in the urine with no trace of fat. Movements of either leg, but not of either arm, gave rise to this lymphuria. Chyluria and lymphuria were both increased by the assumption of the vertical position. As to the necropsy, the thoracic duct was found to be impermeable at a point seven centimetres above the diaphragm. The abdominal lymphatics were much dilated and a well-marked anastomosis was traced between the lacteals and the lymphatics on the right side of the bladder. Mercury could be injected at low pressure in a direction contrary to the normal flow from the upper abdominal lymphatics to the bladder. Inside the bladder, at a point exactly corresponding to the dilated lymphatics, was found a minute papilliform mass of fibrin, closely adherent to the mucous membrane. There seemed little doubt that this marked the position where chyle from the intestinal lacteals and lymph

from the lymphatics of the legs escaped into the bladder. There was no inflammation in the urinary tract and the kidneys were normal. Purulent pericarditis, hypostatic pneumonia, and acute bronchitis were present. This was the fourth published case of a necropsy on a patient with non-tropical chyluria. There were strong reasons for believing that all cases of chyluria, whether due to filariæ or not, were caused by the same anatomical abnormality—viz., obstruction to the thoracic duct or large abdominal lymphatics, with consequent dilatation of abdominal and pelvic lymphatics and rupture of a dilated lymphatic into the urinary tract. The obstruction in filarial chyluria appeared to be due to a fibrous stenosis of the thoracic duct, secondary to inflammation brought about by the presence of filariæ at some earlier period. The parasites themselves had never been found blocking the thoracic duct. As the obstruction, when once produced, would be permanent it would remain after the filariæ had all died out. Hence cases, such as the present one, in which the patient had been abroad 20 years before the onset of the chyluria, might quite well have been due to an old infection with filariæ which had completely died out, leaving the obstruction in the thoracic duct. Presumably the rupture of a dilated lymphatic into the bladder occurred only in March, 1906. In non-filarial cases the obstruction was probably due to some other parasite, or more frequently to caseous glands or other tumour pressing on the duct from without. Hence the distinction between tropical and non-tropical chyluria was artificial and not warranted by the pathogenesis of the two conditions.

Mr. T. M. HAMELL said that he had made observations on a subject in which chyle came from a chylous fistula. The rate of appearance of fat in the chyle was dependent on the condition of the fat and whether it had a high or low melting point. The fats with a low melting point appeared more rapidly than those with a high melting point. He had never been able to detect dextrose in the chyle. He asked whether by any operation it was possible to connect the part of the thoracic duct below the lesion with that above it.

Dr. HERTZ, in reply, said that he had made no experiments with regard to the rapidity of absorption of the fats with the high or low melting points, but for the ordinary fats of food it took only half an hour before they began to appear in the urine. Exercise increased the lymph flow and the rapidity with which the fat appeared in the urine.

CLINICAL SOCIETY OF LONDON.

The Medical and Surgical Treatment of Congenital Pyloric Stenosis.

A MEETING of this society was held on March 8th, Mr. H. H. CLUTTON, the President, being in the chair.

Dr. G. A. SUTHERLAND read a paper on the Medical Treatment of Congenital Pyloric Stenosis, which will be found at p. 725 in the present issue of THE LANCET.

Dr. A. F. VOELCKER read short abstracts of seven cases of Hypertrophic Pyloric Stenosis in infants who had been under his care at the Hospital for Sick Children, Great Ormond-street, and gave an analysis of the 39 cases which had been observed at that hospital since 1897, 35 of which had been males. The age at which vomiting had commenced varied; out of 37 cases noted four had commenced at birth, three at one week, nine at two weeks, 11 at three weeks, five at four weeks, two at five weeks, two at six weeks, and one at eight weeks of age. These and other facts threw doubt upon the condition being a congenital defect. Other congenital malformations were notably absent, and the condition did not recur in other members of the same family. Hypertrophy of the pylorus and gastric peristalsis had been detected in all Dr. Voelcker's cases. In regard to the pathology it had been suggested that such cases consisted of a pyloric spasm caused by excess of hydrochloric acid, and Dr. Voelcker was of opinion that the pyloric lesion was secondary to some alteration in the gastric secretion. Out of 39 hospital cases 34 had died. Five of Dr. Voelcker's seven cases had been operated upon, all of whom had died. He attributed the recovery of the other two to lavage and diet. He did not think surgical intervention of any form was advisable.

Mr. F. F. BURGHARD read a paper on the Surgical Treatment of Congenital Pyloric Stenosis, based upon 16 cases that had come under his own care. Five years ago operative treatment was strongly advocated but of late professional opinion had undergone considerable change. His opinion was that only in a small proportion of cases was operation indicated. He pointed out that the chief difficulty at present was to know in what proportion of cases medical treatment alone might be expected to suffice. Whereas in former years most of the cases came under the surgeon's hands at an early date, the tendency at present was to delay operation as long as possible in the hope that medical measures alone would succeed. This hope was justified in a certain number of cases and the debate would probably do much practical good by enabling surgeons to form some idea of results that were likely to follow medical treatment alone, as hitherto no extended experience had been published. Dealing with the question of operative results, 16 cases in all had been operated upon by the same method—namely, dilatation of the pylorus. Of these cases 11 had recovered satisfactorily from the operation, ten remaining well, whilst one case died within three months of the operation from convulsions; the operative mortality was, therefore, 31·25 per cent., whilst the total mortality was 37·5 per cent. The chief danger of the operation was shock, which could be minimised by careful preliminary preparation and operating rapidly in a well-warmed room, never less than 70° F.; 25 minutes should be sufficient, ten being occupied in the dilatation. Two accidents that had happened in the series of cases quoted were rupture of the pylorus (in two cases) and wound of the duodenum (in one case). These accidents could be treated by immediate suture and were not necessarily fatal. Dilatation of the pylorus was preferable to pyloroplasty but this last was preferable to gastro-jejunostomy. The chief danger of dilatation was splitting the pylorus and to obviate this the incision into the stomach should not be made too near to the pyloric orifice. No recurrence of symptoms occurred after any of the cases quoted.

Dr. HENRY ASHBY (Manchester) said that he had made necropsies on about 11 cases. He had been struck by the marked hypertrophy, though it rarely caused complete obstruction, but he could not help thinking that the hypertrophy was not the essential cause. There were always a large quantity of mucus and other evidences of gastric catarrh. This condition was probably antenatal and produced an over-action of the sphincter which led to the hypertrophy. It was difficult to make out a hypertrophied pylorus during life but with a little patience the abdominal walls might relax and the pylorus drop down from beneath the liver. All his cases had improved temporarily under lavage and small quantities of thin food such as whey. Only one of his cases had been operated upon and the patient had died 12 days later.

Mr. CLINTON T. DENT agreed that the results of surgical intervention had not been very favourable. Out of about 120 collected cases, including a number of unpublished ones, that had been operated on the mortality was about 50 per cent. Unfortunately, surgeons rarely saw these cases until an advanced stage had been reached. Pyloroplasty or pylorectomy was preferable to gastro-enterostomy; the former certainly restored the functions of the pylorus. He had in his possession a section from the pylorus showing that the hypertrophic condition was most certainly antenatal. Prolonged medical treatment certainly jeopardised the surgeon's treatment.

Dr. G. F. STILL said that he had observed 27 cases. Out of 23 in which the result was known 14 had recovered completely; eight of these had been operated on, five of them having been mild cases which had been passed on directly to the surgeon; the other six had been treated medically, five by lavage and one by dieting only. Of the nine that died three were untreated, three were operated on, and three were treated medically. Thus the results were practically as good by medical as by surgical treatment, but each case must be judged on its own merits, not by statistics. He took exception to Mr. Dent's statement as to the undue severity of the cases sent to the surgeon as compared with those treated medically, and he raised the question as to the later results of operative measures. On the other hand, three or four months' persistent lavage was a serious undertaking.

Mr. G. H. MAKINS had operated on two cases and the patients had both recovered, though one had died later from enteritis.

Dr. EDMUND CAUTLEY thought that these cases could be differentiated into three classes: (1) pure pyloric spasm without evidence of hypertrophy, attended by vomiting of

all kinds of foods—these recovered under lavage; (2) moderate degree of hypertrophy, with spasm and dilatation of the stomach; and (3) those in which there were considerable hypertrophy and increasing stenosis. In this last group operative measures were absolutely imperative, otherwise the patients died. Lavage, diet, cocaine, and alkalies might be tried, but his own results were strongly in favour of surgical intervention. Of his last series of 12 cases nine had been operated on by Mr. Dent; four of these in private practice had all recovered; of the five hospital cases three had recovered and two had died (one under the anæsthetic and one suddenly without cause).

Dr. ROBERT HUTCHISON dissented from Dr. Cautley's classification which he regarded as theoretical. Nor could he agree that any surgical measures were indicated in the condition under discussion. He had seen nine cases in private practice, the diagnosis of which could not be doubted. One case was operated on and recovered, and of the eight treated medically only one died. The statistics of hospital out-patients and private cases should be kept separately, for the difficulties of treating the former were sometimes very great.

Dr. SUTHERLAND, in reply, pointed out that adequate medical treatment had only come into vogue during the past two years.

Dr. VOELCKER and Mr. BURGHARD also replied.

OBSTETRICAL SOCIETY OF LONDON.

After-history of a Case of Fibroid of Broad Ligament associated with an Ovarian Cyst.—Perithelioma of the Uterus.—President's Address.—Exhibition of Specimens.

A MEETING of this society was held on March 6th, Dr. HERBERT R. SPENCER, the President, being in the chair.

Mr. ALBAN H. G. DORAN read notes of the After-history of a case of Fibroid of Broad Ligament associated with an Ovarian Cyst reported in the forty-third volume of the society's Transactions. In July, 1901, he removed a cystic tumour of the left ovary and a fibroma of the left broad ligament. After enucleation of the solid tumour he turned the pedicle of the ovarian cyst into the space between the layers of the broad ligament which he then sewed over it. The right ovary was noted as small and normal. In January, 1906, Mr. Doran removed a cystic tumour of the same right ovary which was of a perfectly innocent type. There were no adhesions on the left side of the uterus, a fact which seemed to demonstrate the advantages of the treatment of the pedicle adopted at the first operation.—The PRESIDENT said that he agreed that it was desirable, when possible, to bury pedicles in the broad ligament, but that was not always practicable. The rate of disappearance of silk varied much in different cases. He had seen the silk completely disappear from ovarian pedicles in three months, leaving the stump at the cornu of the uterus smooth and quite free from adhesions. On the other hand, he had found silk present after seven years.—Dr. A. H. N. LEWERS said that he had performed abdominal section a second time in the same patient in a considerable number of cases. It was certainly not the case that the pedicle left after removing an ovarian tumour treated in the ordinary way invariably contracted adhesions. He had several times seen it quite free from such adhesions.—Dr. P. HORROCKS said he had several times seen cases where there were no adhesions over the stump after an operation performed a considerable time previously. He mentioned a recent case where the ovaries had been removed nine years before on account of a fibroid tumour. The latter, however, began to grow and to give trouble and so was removed a week ago by panhysterectomy. No adhesions were found over the stumps of the old operation. He remembered other cases illustrating the same fact and he was inclined to think that the greater the degree of asepsis the less likelihood there was of adhesions forming over the stump. He also thought that if the distal end was strangulated by the ligature being very tight adhesions were liable to form.—Mr. DORAN maintained that the usual practice of leaving a ligatured pedicle bare in the peritoneum often led to extensive, if not dangerous, adhesions. Such was his experience of second ovariotomies on the same patients. 20 years ago, when thick silks were applied to thick pedicles and the peritoneum was irritated by sponges, this complication was far more common than it was at the present day. Dr. Horrocks had referred to a different subject, removal of the ovaries for the cure of uterine fibroids. The pedicles projecting from a big fibroid uterus were in a position highly favourable to the development of adhesions. Mr. Doran observed that in 1901 he noted that two small subperitoneal myomas projected from the fundus. In 1906 he found that they had undergone no increase or diminution in size.

Mr. G. F. DARWALL SMITH read a short communication on a case of Perithelioma of the Uterus. A single woman, aged 38 years, was admitted into St. George's Hospital in July, 1906, complaining of pain in the left side and of more or less constant bleeding from the vagina for the preceding four months. Double ovariotomy had been performed for two ovarian cysts in 1904, one of which was suppurating. These cysts were reported to be cysto-adenomatous in character. The convalescence was uneventful and the patient was discharged apparently well. After this operation menstruation ceased and no discharge of any kind was noticed until the bleeding began in March, 1906. When readmitted the cervix uteri was small and of normal consistence. The uterus was freely moveable and felt somewhat unusually light. Douglas's pouch was empty and there was no abnormal swelling in the pelvis. 15 days after admission the uterus was curetted. The tissue removed was reported to be peritheliomatous. It was almost entirely composed of cells of the growth, round, or slightly elongated in shape, budding off from the periphery of the smaller vessels. Some parts of the growth were quite necrotic. In what were probably the older parts of the growth, the cells, almost glandular in type, were arranged closely about the periphery of small vessels. The very few endometrial glands found in the sections showed some evidence of proliferation of the cells lining them. 26 days after admission total hysterectomy was performed by the abdominal route. The uterus was only slightly enlarged. After hardening it measured three inches in length externally and two and a half inches internally. The external appearances were normal. At the fundus of the cervix and projecting down into the uterine cavity was a soft friable growth distinctly paler than the surrounding mucous membrane. The origin of the growth was more clearly shown in the tissue removed by the curette than microscopically by the sections from the site of the growth, but its peritheliomatous origin was still evident. Almost the entire growth was made up of cells of approximately the same character as the majority of those seen in the curetted tissue. There were only a few capillaries. Strands of elongated cells could be seen at intervals running into the growth from the region of the uterine muscle. These seemed for the most part either to be, or to contain, small blood-vessels. No endometrial glands had been seen in any of the sections cut from the site of the growth. The growth could be seen to be infiltrating the uterine muscle at its base and fairly numerous small round cells were visible scattered among the muscle fibres for some distance towards the peritoneal surface of the uterus. There was much less necrotic tissue to be seen in these sections than in those from the curetting. Sections taken from the cervix uteri showed nothing abnormal.—Mr. J. H. TARGETT agreed that the sections exhibited a malignant growth infiltrating the wall of the uterus. But he regarded it as a sarcoma probably originating from the cellular stroma of the endometrium; whether it had begun in the sheaths or walls of the capillary vessels did not affect the general characters of the growth. When a sarcoma invaded a dense tissue like uterine muscle it extended between the planes of fibres and thus simulated the mode of infiltration of a carcinoma. A further investigation of the specimen was desirable.

The PRESIDENT then delivered the Inaugural Address. After thanking the society for the high honour which it had conferred upon him he proceeded to consider how far the "diseases" and "peccant humours" of learning, of which Bacon wrote in the "Advancement of Learning," applied to the advancement of obstetrical and gynæcological knowledge at the present time. He believed that obstetrical and gynæcological knowledge was not altogether unaffected by the diseases of "vain words," "vain matter," and "deceit or untruth," and by the peccant humours of "affecting antiquity or novelty," "impatience of doubt and haste to assertion without due and mature deliberation of judgment," and "the delivery of knowledge in a sort as may be soonest believed and not easiliest examined." He commended Bacon's "Register of Doubts," but thought it should be used with Bacon's caution, "that when the doubts

be thoroughly sifted and brought to resolution they should be from henceforth omitted, discarded, and not continued to cherish and encourage men in doubting." It was time, he thought, that certain items should be expunged from their register of doubts. The President believed that some of Bacon's criticisms of medicine 300 years ago were still applicable to it: it was still "more professed than laboured, more laboured than advanced," the labours being in some respects "rather in circle than in progression." The "history of the case," which Hippocrates and Bacon thought so important in their days, remained so still, for a complete history was often a partial diagnosis. They should not too readily pronounce cases of cancer inoperable or incurable, and thus "enact a law of neglect and exempt ignorance from discredit." Allusion was made to the value of statistics, which ought to be "*truths* expressed in figures," with special reference to the statistics of cancer of the cervix and the fallacy of percentages. The common method of stating results in percentages after excluding the cases of death from the operation, of death from other causes, and of those who did not reply to inquiries would permit an operator with a 99 per cent. of death-rate to claim 100 per cent. of "cures" if a single patient of 100 operated on remained well for five years. He advised that no notice should be taken of results stated in percentages unless full details were given of the figures on which those percentages were based. The results of operations for cancer of the cervix would only be greatly improved when the cases were obtained in the early stages by diffusion amongst women of knowledge of the symptoms of the disease and by medical men recognising that it was their duty to advise a local examination in every case of bleeding or discharge which might be due to cancer. Medical men should in their own interests advise examination, as failure to do so would render them liable to an action at law for negligence. After some allusion to the rules of the society the President expressed his satisfaction at the union of the Obstetrical and Gynæcological Societies to form a section in the new Royal Society of Medicine. He looked upon the amalgamation of the various London medical societies as but a step towards a far more important union—viz., that of the Royal College of Physicians with the Royal College of Surgeons to form a Royal Academy of Medicine.

The following specimens were shown:—

Dr. G. F. BLACKER: (1) Suppurating Fibroid Tumour of the Uterus; and (2) a case of Chorion Epithelioma.

Dr. C. HUBERT ROBERTS: Section of "Supposed Recurrence after Vaginal Hysterectomy."

CAMBRIDGE MEDICAL SOCIETY.

The Voluntary Notification of Pulmonary Tuberculosis.

A MEETING of this society was held on March 1st, Dr. WALKER (Peterborough), the President, being in the chair.

Dr. J. H. C. DALTON opened a discussion on the Voluntary Notification of Pulmonary Tuberculosis by stating that the society was asked to take this question into consideration by the public health committee of the Cambridge town council, which wished, before taking any action in this matter, to ascertain the opinion of the medical practitioners in the town. He himself considered one good effect of notification would be the detection of the early cases. At Addenbrooke's Hospital there was provision for treating consumptives in the open air and yet most of the patients first presented themselves at a time too late to hope for a cure. Even if the hospital could not accommodate all the early cases seeking treatment the health visitors, who acted under the direction of the medical officer of health, had accepted the responsibility of visiting patients at their homes and advising them as to the precautions to be taken, while there were charitable associations in the town which would give assistance to patients to enable them to be admitted into a sanatorium. Up to the present the borough council had not undertaken the care of patients suffering from pulmonary tuberculosis. He felt, nevertheless, that if after the introduction of notification it was felt that some provision should be made the council would rise to its responsibilities in this matter.

Dr. DUNCAN FORBES, medical officer of health of Cambridge, began by alluding to the kind of case which ought to be notified. The impossibility of busy private practitioners attempting to undertake the duty of visiting and revisiting poor patients in order that they might instil into them simple although necessary precautions was pointed out. Practitioners were advised to notify not only their poor cases requiring teaching but also every case in which there was a doubt if periodic cleansing, except under supervision, would be carried out. The cases mentioned included paupers, dispensary out-patients, and careless patients—in short, persons who spread the disease in the common lodging-house, the public-house, and the small, crowded, slovenly kept houses, the very places which were the better for occasional cleansing and disinfection. Re-notification on change of address was asked for and its importance in the case of the pauper entering the workhouse was noted. Incidentally, attention was called to the dangerous practice which existed in workhouses of allowing convalescents from pulmonary tuberculosis to mix with the able-bodied paupers, many of whom entered the workhouse in a half-starved condition. A short account was given of the administrative routine following notification. Friction might result from annoyance caused by repeated cleansings and visits and the fear of the patients that employers might be informed of their trouble. In the former case the patients said that the visits advertised the fact that they suffered from pulmonary tuberculosis and they also regarded the cleansings as unnecessary; it was a curious fact, however, that the careless patient in the dirty house complained most. The second was an imaginary grievance, as nothing was done likely to interfere with employment, however necessary it might appear to be to send a warning to employers. In this connexion extracts from a list of 1105 deaths from pulmonary tubercle occurring in Cambridge from 1883–1902 inclusive and classified according to occupation showed that during this period 11 grocers, seven bakers, seven butchers, three fishmongers, two fruiterers, two dairymen, one confectioner, one hairdresser, seven teachers, and 23 domestic servants had died from this disease. It was mentioned that, apart altogether from notification, the authority would continue to disinfect any room at the request of the practitioner and supply spittoons free of charge.

Dr. A. NEWSHOLME, medical officer of health of Brighton, in his remarks stated first that the theoretical objections so frequently urged against the notification of pulmonary tuberculosis had in the experience of Brighton during the last seven years proved to possess little value. The first of these was that notification could not be followed by any further good than was already effected by general sanitary supervision of a community and the personal advice of the family medical attendant. Supervision of overcrowding and domestic uncleanliness even in well-regulated towns was at long intervals, and in the absence of notification the special dangers associated with specific infection along with these conditions would often be left uncontrolled for many months or even years. The busy practitioner again could not always find time to give the necessary instruction to patients and there was great advantage in having such advice reiterated. The second possibility that there would be interference with, or risk to, a patient's occupation through notification was altogether unknown. Quite apart from notification the publicity given to the infective nature of pulmonary tuberculosis had doubtless in some instances rendered persons unwilling to work with consumptives, but this occurred quite irrespectively of notification. Furthermore, the visits to notified cases were domestic and not industrial, and the best corrective to exaggerated views as to infection was more exact instruction. It had been urged, thirdly, that voluntary notification would create difficulty between the medical man and his patient. This was doubtless the most potent argument in favour of compulsory notification. Under a voluntary system the consent of each private patient should be obtained to notification, but this had been found to be entirely unnecessary in dispensary, Poor-law, and hospital practice. Among this class of patients notification was welcomed because of the help it brought. Even when only partial notification occurred much good could be done in the instances where such notification had been given by arranging for disinfection on change of address, &c. In Brighton during last year 47 out of 171 town specimens of sputum found during 1906 to contain tubercle bacilli were not followed by subsequent notification of the cases. But in these cases much good must have been done by aiding earlier diagnosis. Dr. Newsholme next described the procedure after notification. The main point of novelty on which he laid stress was the importance of persuading other members of the same family

found to be ill to obtain medical aid and for this purpose when necessary supplying them with hospital and dispensary tickets. Although it was urged that disinfection should be carried out with discretion, the main preventive measure was to train the patient as regards spitting. For this nothing equalled a month's training and treatment in a sanatorium, irrespectively of whether the case was curable or not. The 25 beds for this purpose and for the longer treatment of early and advanced cases which Brighton possessed at its isolation hospital had doubtless greatly helped the success of its system of voluntary notification of pulmonary tuberculosis. Thus comparing the years of most recent records Brighton had about four cases of pulmonary tuberculosis notified to every two deaths from that disease in the town, while New York had five cases notified to two deaths and Sheffield three cases to two deaths (both having compulsory notification); and Manchester and Liverpool with voluntary notification had three cases notified to two deaths. At the present time nearly 50 per cent. of all cases of the disease notified in Brighton had passed through its borough sanatorium. In conclusion, Dr. Newsholme laid stress on the importance of the institutional treatment of advanced cases of pulmonary tuberculosis. At the present time from one-third to one-fifth of the deaths from the disease in some of the great towns occurred in their workhouse infirmaries and these patients lived a large part of a year in these institutions before their death. In his opinion, this unexpected and unforeseen operation of workhouse infirmaries had been during the last 30 years a predominant cause of the decline in the national death-rate from pulmonary tuberculosis and it was in the direction of extension of similar measures, and particularly by removal of all Poor-law conditions from the treatment of the disease, that the most hopeful field for even more rapid decline of the death-rate from pulmonary tuberculosis lay.

Professor G. SIMS WOODHEAD said that he was glad to hear that the two previous speakers, who both spoke as interested in the treatment of individual consumptives, had insisted on the necessity of dealing with and isolating tuberculous patients who might be centres of infection. Whilst agreeing that much might be done in the treatment of the early stages of pulmonary tuberculosis by good food, fresh air, and the like, he thought that the public health side was liable to be somewhat neglected. He had always held that in the clouds of dust which had been raised in the controversy that had raged around Koch's great pronouncement at the British Congress on Tuberculosis one of the most important of the issues laid down in that manifesto had been lost sight of, or, at any rate, had not had assigned to it its proper position. It might be that everyone had agreed so fully on this one point that it had been "taken as read" and also "taken as acted upon," when, as a matter of fact, very little had been done to render consumptives in the later and really infective stages less dangerous as centres of infection to their fellows. Patients who were treated in sanatoriums were trained to limit the distribution of their sputa and to insure its disinfection, but the patient in an advanced stage of the disease was often allowed to disseminate, and to disseminate very widely, dangerous infective material in a way that would be deemed absolutely criminal in the case of typhoid fever or diphtheria. Again, the precautions taken against the spread of leprosy, a far less general and fatal though certainly more repulsive disease, were infinitely more stringent than the most stringent ever adopted against the spread of tuberculosis. Speaking from his own special point of view, he was convinced that the voluntary method of notification was not only a rational but a feasible method and one that, if carried out with tact and a reasonable amount of judgment and good sense, should secure most of the advantages of compulsory notification with but few of its drawbacks. Moreover, should it be found later that compulsory notification was desirable, the experience gained under the voluntary system should prove of enormous value to those who would be responsible for the drawing up and putting into force of the compulsory system. He was deeply grateful to the openers of the discussion for the very clear and forcible lead that they had given to those interested in this very important question.

Dr. L. HUMPHREY expressed the opinion that enough attention was not paid to the question of dealing with the advanced cases of consumption. All their efforts were directed to the care of the early cases and large sums of money were expended upon sanatoriums for the treatment of this stage of the disease. Although no doubt there was good reason for this course he thought that amongst the poorer classes the number of cases in which the disease was arrested for any great length of time was comparatively small. Such patients were unable to give up the time which it was necessary to spend in a sanatorium during several successive winters and in the intervals their surroundings and necessary occupations often undid much of the good they had obtained and in the end they joined the ranks of the advanced cases. This was, no doubt, partly due to the very great difficulty of getting hold of the disease in its earliest stage. Dr. Humphry thought that every advanced case which was uncared for was a potent source of infection and was in all probability the source of several early cases and yet very little was being done to deal with them effectively; they were usually excluded from hospitals and sanatoriums and were a source of difficulty in workhouses and infirmaries; they lost heart, discarded the list of hygienic directions given them in their previous ill-health, and ended in distributing the infection in their unhealthy alleys and homes. The public were willing to give their money to prevent children being infected by milk and to erect sanatoriums for the early cases, while the most potent source of infection of all was not provided for. Dr. Humphry would be in favour of the voluntary notification of pulmonary tuberculosis if he thought that the advanced cases could thereby be rendered less dangerous to the community.

Professor HOWARD MARSH said that he had been greatly interested by the papers read by Dr. Forbes and Dr. Newsholme. The subject was one of the most important in the whole field of sanitary development at the present time. Indeed, the limitation, and ultimately the total abolition, of tuberculosis in man and the lower animals was an enterprise which might well be regarded as of Imperial concern. Moreover, the means of achieving this great victory over disease were well known; they were, in fact, ready to hand, if only, or whenever, they could be efficiently carried out. The voluntary notification of tuberculosis was surrounded by difficulties which at first sight appeared to be insurmountable. But he was much impressed by the attitude which Dr. Newsholme had adopted towards it, and which consisted in travelling warily and most skilfully along the lines of least resistance. So proceeding Dr. Newsholme had evidently already made very substantial progress and had shown not only on paper but by practical results that those who went the right way to work could by tact and resource, and by winning the confidence of patients and teaching them how much they would gain, secure voluntary notification in a large proportion of cases. This was, so to say, half the battle, for unquestionably voluntary notification was a most potent agent on the side of those who were struggling to eradicate tuberculosis. For his part he should watch the movement with the greatest interest and, remembering what they had just heard, with full confidence not only that voluntary notification was capable of rendering very valuable service but that it could be worked efficiently and on a scale readily admitting of wide extension.

Mr. F. E. APTHORPE WEBB stated that he thought much good might be done by the notification of pulmonary tuberculosis. A great point was made of the desirability of discovering early cases, but it was just as important to treat advanced cases hygienically in order to prevent infection of others. He moved the following proposition:—

That in the opinion of the Cambridge Medical Society it is eminently desirable that steps be taken by the local health authority to initiate a system of voluntary notification of phthisis.

This was unanimously carried and a vote of thanks to Dr. Newsholme for his paper, proposed by Professor G. H. F. NUTTALL, and carried by acclamation, terminated the proceedings.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF PATHOLOGY.

Exhibition of Specimens.

A MEETING of this section was held on Feb. 15th, Dr. J. F. O'CARROLL, the President, being in the chair.

Dr. L. G GUNN exhibited a specimen taken from a man, aged about 45 years, who had been admitted to hospital with the usual symptoms of Tuberculosis of the Urinary Tract.

As far as could be diagnosed he had a large right kidney, from which it was thought that the pus in the urine was proceeding. The bladder was small, contracted, and tuberculous. A cryoscopic examination led to the conclusion that the patient was on the borderland of insufficiency and the right kidney was thought to be a bag of tuberculous pus. On operating a large kidney was found having a great deal of apparently healthy tissue in it. On exploring the pelvis of the kidney tuberculosis was found to be present. Dr. Gunn presumed that he had been wrong in thinking the other kidney healthy; he therefore did not take the right kidney out. The patient died two days afterwards, and the necropsy showed that the cause of death was extensive miliary tuberculosis affecting the liver, the lung, and the spleen. The left kidney was a tiny structure but perfectly healthy. On account of its smallness, which was apparently congenital, it would by itself alone be functionally inadequate for the maintenance of life. The primary tuberculous focus was a small chronic abscess in the prostate.—Professor E. J. MCWEENEY said that the large kidney was a beautiful specimen of compensatory hypertrophy; the other was the smallest he had ever seen which bore no evidence of organic disease.

Dr. A. R. PARSONS showed a Liver affected with Cirrhosis and Carcinoma obtained from a woman, 42 years of age, who had been admitted to hospital in November, 1906, complaining of considerable swelling of the abdomen and also of the legs. The swelling of the abdomen, which had commenced three months previously, had not interfered with her until some six weeks before admission. She gave an ill-defined history of alcoholism; the liver was uniformly enlarged; the spleen was considerably enlarged; there was a history of hæmorrhoids; and the fluid obtained on tapping was clear and non-sanguineous. These symptoms indicated cirrhosis but, on the other hand, the rapid emaciation and short history of the case were supposed to suggest malignant disease. No primary focus could be palpated in any part of the abdomen. On opening the abdomen after death the liver was found to be enlarged considerably and affected with malignant disease. Advanced cirrhosis of the liver, usually attributed to alcoholism, was also present. There was no evidence whatever of primary malignant growth in the stomach, pancreas, intestines, uterus, and ovaries, and the naked-eye appearance of the liver and the microscopic sections showed that the growth was primary in the liver. There were secondary nodules in the lung. The case represented an unusual combination of primary malignant disease and advanced cirrhosis of the liver.

Dr. PARSONS also showed specimens obtained from a case of Lymphatism. The patient was a boy, aged seven months; he was perfectly well until the day before his admission to hospital and he died about one and a half hours after admission. The thymus gland was enormously enlarged and covered quite a large portion of the heart. In reference to this Dr. Parsons said that in 1892 he had met with several cases of sudden death in children from one to five years of age, in which the only abnormal post mortem appearance was great enlargement of the adenoid tissue of the intestines. Dr. George Peacocke had described two or three cases which were identical with his own cases and referred to a paper by Dr. Ewing of New York who, following Paltauf, called the condition lymphatism. The cases were characterised by sudden death, frequently, but not always, preceded by convulsions; and the necropsy revealed nothing sufficient to account for death. Dr. Peacocke observed in his cases extreme enlargement of the thymus gland.—Dr. PEACOCKE said that he had never found any enlargement of the external lymphatic glands. He was sure that a great many cases occurred which were ascribed to convulsions.

Professor ARTHUR H. WHITE exhibited organisms obtained from cases of cerebro-spinal meningitis. From the first case reported he had made direct cultivations from spinal fluid obtained aseptically by lumbar puncture in broth, human blood serum, glycerine agar, and litmus milk. The broth next day was barely clouded; tiny discrete grey colonies developed on the serum; the glycerine agar remained sterile. Subsequent examination showed these growths to be pure cultures of a diplococcus, sometimes seen in tetrad form, staining irregularly with simple stains like Löffler's blue and negative to Gram's stain. Microscopic examination of the cerebro-spinal fluid showed very many pus corpuscles and numerous organisms seen mainly as diplococci but there were many tetrads and a few short chains. A considerable number of these organisms were inside the pus cells. Some of them appeared to have capsules and, like those in the cultures, all were decolourised by Gram's method. He continued the inoculation of further cultures to the fifth generation, which was still alive. The fourth and fifth generations had grown very well on ordinary agar, although the original inoculation on the glycerine agar was without result. He had inoculated animals with negative results. The same organism in pure culture was obtained from later cases of the disease, but a smaller number of pus cells and fewer organisms were present, although the cases were more severe clinically. The diplococcus now exhibited had many of the characters of the organism described by Weichselbaum under the name of diplococcus intracellularis meningitidis, but apparently differed from it in having a capsule and in forming short chains. He was not quite satisfied that the organism was a distinct entity, but inclined rather to the opinion that it was a modified pneumococcus.—Professor MCWEENEY said that he had observed two cases of Meningitis within the last few days in the Children's Hospital, Temple-street, Dublin. A necropsy was obtained in one of them and revealed the tuberculous form, limited to the cerebral pio-arachnoid. From this numerous tubercle bacilli were obtained in smear preparations. In the other case, which was regarded by Dr. D. J. Farnan as typical cerebro-spinal meningitis, there was no necropsy, but he had examined about five cubic centimetres of fluid obtained from the child (aged three years) by lumbar puncture. The microscopic result was negative, but he had succeeded in growing from it, as the only organism present, a Gram-staining diplococcus tending to form tetrads and growing well in the form of small whitish colonies on ordinary agar, serum agar, and blood agar. He felt sure that this could not be the organism described by Weichselbaum and found by Professor White.

SECTION OF SURGERY.

Frontal Sinusitis.

A meeting of this section was held on Feb. 22nd, Mr. H. R. SWANZY, the President, being in the chair.

Mr. ROBERT H. WOODS exhibited three cases of Frontal Sinusitis subsequently to operation. The operative procedure was as follows. An incision was carried from within outwards along the line of the eyebrow and the frontal sinus was laid open by means of a small trephine, the aperture being subsequently enlarged by means of gouge forceps. The diseased mucous membrane lining the sinus and its recesses was thoroughly removed with a curette. The entire anterior wall of the sinus was not removed, as was generally recommended in the text-books, in order that the scalp might recede and adhere to the posterior sinus wall, because, in his opinion, this step was unnecessary. Obliteration of the cavity could be brought about after removal of the mucous membrane by the growth of granulation tissue from its bony walls.—Mr. P. DEMPSEY alluded to the difficulty in the complete eradication of sinus infection. He said that nothing was easier than to alleviate the discharge and nothing was more difficult than to get it to cease altogether.

The report of the meeting of the Section of State Medicine published in THE LANCET of March 2nd, pp. 591 and 592, contains the full text of a resolution relative to the Poor-law medical service in Ireland adopted by the section. It is now announced that this resolution has been adopted by the General Council of the Royal Academy of Medicine in Ireland.

FORFARSHIRE MEDICAL ASSOCIATION.—A meeting of this society was held on March 7th, Mr. David M. Greig, Vice-President, being in the chair.—Dr. G A. Pirie exhibited X Ray Photographs of Incipient and Advanced Pulmonary Tuberculosis, Hip-joint Disease, and several Injuries to Joints. He also showed a patient who had recovered from lupus of the face of many years' standing, after repeated application of the x rays.—Mr. Greig exhibited and explained Greville Anderson's Screws and Clamps for the more perfect securing of the ends of ununited fractures in the long bones.—Professor Alexander M. Stalker read a note on Pulsus Bisferiens. The case was one of aortic stenosis and a striking clinical feature was the diastolic murmur, which was long, rasping, and squeaking in character, indicating great difficulty in the flow of blood from the ventricle and also in the backward flow. He stated

that some authorities had suggested that the condition shown in tracings of pulsus bisferiens was an artificial one due to some instrumental defect, the sharp needle-like apices of the tracing indicating this. The tracing of the pulse in his case showed a split wave, but it was not due to any defect of the instrument, for a double impact could be most distinctly felt by the finger in both radial pulses Why pulsus bisferiens should be associated with aortic stenosis he was not prepared to explain, but he was inclined to agree with Dr. Graham Steell's opinion that it was caused by a difference between the rate of the blood flow in the aorta and at the periphery whereby a double wave was produced in the radial pulse.—Dr. R. C. Buist read a note on the Application of Midwifery Forceps. His method was as follows. The patient being under an anæsthetic, in the left lateral position, and the operator's hands and the forceps being previously disinfected, the upper labium was raised with the right hand covered by a swab of wool soaked in lysol solution and four fingers of the left hand were passed into the vagina up to the head and the dorsum was turned towards the hollow of the sacrum. The left blade taken in the right hand was passed along the palm of the left hand and guided into position by the fingers, the handle was raised, and when in proper position it was pushed back towards the perineum and behind the left hand, where it was retained and supported in position by the wrist; the right blade was then introduced in the usual way and the blades were locked. The advantages of this method were, that only one hand was introduced into the vagina and thus the sources of possible infection were reduced and the right hand was available for the introduction of both blades, for the administration of more chloroform, if necessary, or for any other purpose. It was also easy of application and could be managed without assistance.—Dr. William E. Foggie read a paper on three cases of Cerebro-spinal Meningitis. The first patient was a boy, aged five and a half years, of previous good health, who was attacked with headache, sickness, and vomiting which did not yield to ordinary treatment but were followed by great prostration. There was slight feverishness, the pulse was slow and irregular, there was stiffness of the neck and the right arm, and Kernig's symptom was present. The knee-jerks were absent. All the other systems were normal. There were no spots. After seven days' illness he passed into complete unconsciousness, ending in death on the sixteenth day of the illness. Lumbar puncture was performed the day before death. The fluid was clear like water and flowed in a constant slow stream; it showed marked leucocytosis and yielded a pure culture of diplococcus meningitidis intracellularis but no evidence of tubercle. The second patient was a delicate rickety girl, six months old, residing in the same street as the boy. She became ill with signs of gastro-intestinal catarrh, followed by stiffness in the neck and back, rigidity in the arms, and speedy unconsciousness. Her temperature was raised, her pulse was rapid and irregular, she had indications of broncho-pneumonia, and her knee-jerks were increased. She showed symmetrical groups of hæmorrhagic spots, blue in colour over the pectoral muscles, in areas of the size of a penny, occurring also on the forearms and the back of the elbows. Lumbar puncture yielded slightly blood-stained fluid which contained the diplococcus meningitidis intracellularis. Death took place five days after the onset of the symptoms. The third patient was a boy, aged two years, who two days previous to being seen had fallen and bruised his face. He afterwards became drowsy and then comatose; there was no vomiting, but his mother thought that he had difficulty in swallowing. His temperature was 103° F. and his pulse was 140 per minute and irregular. The right pupil was dilated and did not react; the left one was contracted with well-marked light reflex. There was strabismus in the left eye. There were no retraction of the head and no stiffness, the limbs being quite flaccid. He died on the sixth day. At the necropsy all the veins in the head were found to be greatly distended with blood; there was slight flattening of the cerebral convolutions and the ventricles were moderately distended with fluid. A soft yellowish-green exudation had formed over the posterior basal aspect of the brain; it was most marked over the pons and medulla, and spread down both surfaces of the cord to its termination. No tubercles were visible. There was a considerable quantity of turbid, watery fluid in the spinal theca. All the other organs were normal and there was no indication of tubercle anywhere. The fluid contained the pneumococcus of Fraenkel. Dr. Foggie said that the clinical features of the three cases supported the diagnosis of cerebro-spinal meningitis; it was, however, essential to confirm the diagnosis in such cases by lumbar puncture. Microscopic specimens of normal cerebro-spinal fluid, leucocytosis, Diplococci meningitidis, and pneumococci were exhibited.—In the discussion Professor Stalker expressed his doubt as to the correct diagnosis of many of the early cases in Glasgow, pointing out that since the epidemic commenced the deaths from tuberculous meningitis had decreased in number.

ULSTER MEDICAL SOCIETY.—A meeting of this society was held in Belfast on Feb. 28th, Dr. D. P. Gaussen, the President, being in the chair.—Mr. A. Fullerton read a paper on the Examination of the Urethra and Bladder by the Electric Light. The paper was based on a year's work and included notes of a number of urethroscopies, 111 cases in which the cystoscope was used and 42 cases in which the ureters were catheterised. The urethroscopes which were found most convenient were those of Fenwick and Wyndham Powell. The inflating apparatus was found to be a most valuable addition to the instrument. A case which well illustrated the use of the urethroscope for diagnosis and operative procedure was that of a patient who had violent hæmorrhage from the urethra. The urethroscope showed several papillomata two and a half inches from the meatus. These were removed through a large cannula with complete relief of the symptoms. The cystoscopies were divided into four groups: (1) those in patients whose only or chief symptom was hæmaturia; (2) those in which pyuria was the chief symptom; (3) those who complained chiefly of frequency of micturition; and (4) those who had a combination of symptoms, such as pain, frequency, and blood or pus or both. It was pointed out under (1) that the difficulties of diagnosis in hæmaturia were very considerably reduced by the use of the cystoscope and there was also mentioned the necessity in some instances of using in addition the catheterising cystoscope. In a case of polycystic disease of the right and probably also of the left kidney blood-stained urine was obtained by catheter from the right side and albuminous urine (both of low specific gravity) from the left. In the forlorn hope of saving the patient from death from hæmorrhage the right kidney was removed by the surgeon in charge of the case. The bleeding ceased but the opposite kidney was insufficient and the patient died. The sections of the kidney would appear to support the view that the cysts were formed by dilatation of the tubules. In a second case blood-stained urine was obtained from *both* ureters by catheter. The specimens contained numerous casts. The rarity of bilateral hæmaturia in these symptomless cases was pointed out. In a third case the hæmorrhage was found to come from the left ureter and a small spicule of oxalate of lime was removed from the kidney on that side, thereby curing a hæmaturia which had lasted for four years. This patient, like the last, had no localising symptoms. Under heading No. 2 a number of cases of pyuria were described in which it would have been impossible without the catheterising cystoscope accurately to have located the mischief. In one case the pus was discovered in routine examination by the medical attendant and tubercle bacilli were found in the urine. The ureteral catheter drew off purulent urine from the right kidney, though no pain or swelling was present in that region. Under heading No. 3 cases of enlarged prostate were mentioned in which no residual urine or enlargement per rectum could be discovered. The cystoscope showed, however, intravesical projections, the cause undoubtedly of irritability and frequency. A small prostate weighing four drachms, removed by the suprapubic route, was shown, in which a polypoid projection occupied the prostatic urethra and caused much irritability. It contained one large and a number of small stones in its substance. In a case of frequency about a score of small, round, yellowish nodules were found on the posterior wall of the bladder with no other sign of disease. It was thought these might possibly have been tubercles, although it was pointed out that tubercle in this form was rare. Group 4 included a large number of cases and examples were given to show how easily a mistaken diagnosis might be arrived at without visual examination of the bladder. Under this heading cases of cystitis, tubercle, ulcer, stone, benign papilloma, malignant disease, and bilharzia hæmatobia were quoted. In one case an acute cystitis occurred with sloughing of a large area on the left posterior superior wall. The slough separated, leaving the

muscle bare. The patient, a female, aged about 30 years, was slowly recovering. In the case of bilharzia red raised areas were seen, scattered over which round, raised, smooth, whitish nodules were visible, varying in size but mostly of about that of a pin's head. Ova were found in the urine. A photograph was shown of a case of single right-sided kidney which was discovered in the dissecting-room of Queen's College, Belfast. The kidney was large and divided into an upper and a lower portion and lay partly in the abdominal cavity and partly in the pelvis. There were two ureters, one from the upper and one from the lower pole, the former being the longer and larger. These opened into the right and left extremities respectively of the trigone, so that a cystoscopic examination gave the impression that there were two ureters in normal position. That on the right side had a larger orifice than that on the left and the inter-ureteric bar was more strongly marked on the right. The importance of remembering the possibility of such a case occurring in surgical practice was pointed out. The paper was illustrated by morbid specimens, microscopical preparations, and apparatus.—In the discussion which followed Professor J. Symington, Mr. R. J. Johnstone, Mr. R. Campbell, Dr. G. A. Hicks, and the President took part.

LIVERPOOL MEDICAL INSTITUTION.—A pathological meeting of this society was held on March 7th, Mr. Frank T. Paul, the President, being in the chair.—Dr. E. E. Glynn read a short paper on Pulmonary Thrombosis and Embolism. He described a case of hypopyon, of appendicitis, and of mammary cancer, all dying unexpectedly in from ten to 30 minutes; very extensive stratified thrombi were found in both the right and left branches of the pulmonary artery, but its main trunk was free. This fact, combined with the absence of lesions in the systemic veins and of macroscopic and microscopic evidence of large emboli imbedded in the clots, suggested the probability of primary thrombosis or the possibility of thrombosis secondary to many small emboli. He contrasted two undoubted cases of pulmonary embolism—in the one the embolus, a vegetation from the pulmonary valve, caused death in five minutes; in the other, a large old pigmented red thrombus, the result of phlebitis in the calf lasting ten days, plugged the pulmonary artery, producing a secondary thrombosis and death in one hour.—Dr. J. Hill Abram was prepared to accept thrombosis as opposed to embolism in these cases. He had long taught that the sudden onset of symptoms was not an absolute proof of embolic origin; the final occlusion of any vessel by thrombosis was often quite sudden, as he had found on many occasions.—Dr. W. B. Warrington read a paper on Epidemic Cerebro-spinal Meningitis, in which the question of the relation of this form of meningitis to other types was discussed. The peculiar characters of the disease and of its spread in so-called epidemics were touched upon.—Dr. Abram said that he proposed to try intraspinal injections of collargol in any case coming under his care as several successful cases had been recorded. He thought that sporadic cases of meningitis were classed under cerebro-spinal meningitis as Dr. Warrington used the term without adequate proof; in his own experience he had not met a case he could record as proven. The severity of certain symptoms was only relative and such characteristic symptoms as the skin rashes were not noted as a rule in the sporadic cases. Differential diagnosis turned largely, then, on the investigation of the fluid obtained by lumbar puncture, apart from obvious sources of sepsis or tuberculous infection. Cytological examination had proved useless in the case of pleural exudates at the Johns Hopkins clinic and Dr. Abram thought it would do so in the cases under discussion. Bacteriological findings were of greater value but in Dr. Abram's experience were not so often positive as had been suggested. In his cases of tuberculous meningitis the bacillus had not been found in a single instance. As regards Weichselbaum's coccus no doubt the intracellular position of the organisms was an almost characteristic feature but he would hesitate before allowing the absolute value of Gram staining. Jager Heubner had shown that occasionally an intracellular coccus was Gram-positive. Hutinel stated that the variation arose from the duration of the infection—i.e., if early Gram-positive, if late Gram-negative. Dr. Abram was surprised to hear that the meningococcus had been found so often in the peripheral blood; if this statement was confirmed a valuable factor in the recognition of a pneumococcal infection had been destroyed. —Dr. A. G. Gullan said that recently he had seen two cases of cerebro-spinal meningitis. The first, that of a child, aged three years, was admitted into the Stanley Hospital after a few days' illness with hyperæsthesia, retracted head, rigidity of the limbs, and Kernig's and Babinski's signs well marked. A few petechial spots were present and the temperature was high. Lumbar puncture was performed and one and a half ounces of turbid watery fluid were withdrawn on two occasions; this contained mononuclear leucocytes and the organism was not found. Unfortunately no post-mortem examination was allowed. The second case was that of a girl, aged nine years. She showed the typical symptoms—i.e., rapid onset, high fever, intense headache, otherwise she was mentally clear; her head was very much retracted; the limbs were flexed and rigid, resisting movement. Petechial and erythematous eruptions over the abdomen and extremities, hyperæsthesia, vomiting, and diarrhœa were present. A lumbar puncture withdrew about five ounces of turbid watery fluid which contained multinuclear leucocytes and the diplococcus intracellularis. This patient had steadily improved since the withdrawal of the fluid and was now convalescent. Dr. Gullan added that some years ago he had seen four cases of sporadic cerebro-spinal meningitis, two of whom recovered and two died, and he then first noticed the benefit obtained by lumbar puncture which was fully corroborated by his two recent cases.—Dr. Glynn, Dr. Nathan Raw, Dr. J. C. M. Given, Dr. C. J. Macalister, Dr. Stansfield, Dr. E. Glynn-Hay, Dr. Marsh, and Dr. Armstrong also spoke.

SOCIETY OF ANÆSTHETISTS.—A meeting of this society was held on March 1st, Dr. R. J. Probyn-Williams, the President, being in the chair.—A paper was read by Dr. Z. Mennell on Some Points in Connexion with the Use of Ethyl Chloride. He gave his reasons for having largely discontinued the use of this anæsthetic, his deductions being based upon a large number of cases at St. Thomas's Hospital. He brought evidence to show that ethyl chloride increased the coagulability of the blood and that in consequence of this pulmonary embolism occurred after the use of the ethyl chloride-ether sequence more frequently than when ether was preceded by nitrous oxide. The frequency of such cases, at any rate at St. Thomas's Hospital, had coincided in time with the introduction into common use of ethyl chloride.—Dr. Llewellyn Powell agreed with most of Dr. Mennell's observations and was glad to hear a paper which took a pessimistic rather than an optimistic tone in its view of ethyl chloride. He had seen instances of undoubted embolism but not as yet in connexion with the use of ethyl chloride.—Dr. J. F. W. Silk was of opinion that ethyl chloride was most useful provided it was given in an open way. He was accustomed to employ it in large doses with free air dilution and not to seek to obtain anæsthesia but merely a degree of insensibility sufficient to allow for the rapid and convenient introduction of such an anæsthetic as the A. C. E. mixture.—Mr. Cuthbert S. Wallace was able from his own observations to confirm the opinions of Dr. Mennell. When the anæsthetic was in the hands of a comparatively inexperienced administrator he was often subjected to anxiety if ethyl chloride was employed.—Dr. J. Blumfeld regretted that Dr. Mennell had not brought forward more details as to the cases of pulmonary embolism. He was curious as to the nature of the operation in these cases and as to the extent to which ether had been used after the ethyl chloride. In his experience embolisms were peculiarly common after operations for hernia. Personally he found ethyl chloride very useful before ether in muscular and in alcoholic individuals.—Dr. A. B. Kingsford could not corroborate Dr. Mennell's conclusions as to the detrimental after-effects from ethyl chloride. Moreover, in 10 000 cases at the throat hospital where he worked artificial respiration had been required on only two occasions.—Mr. Walter Tyrrell thought that very likely some of the ill-effects described were due to the ease with which ether was used to excess in immediate sequence to ethyl chloride.—At the annual general meeting held later the following officers were elected:—President: Dr. R. J. Probyn-Williams. Vice-President: Mr. C. Carter Braine. Treasurer: Dr. J. F. W. Silk. Secretaries: Mr. W. Foster Cross and Dr. Llewellyn Powell. Members of council: Dr. J. Blumfeld, Miss Ada Browne, and Dr. G. M. Foy. Auditors: Dr. Vivian B. Orr and Mr. R. W. Collum.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 6th, Dr. W. Hunter being in the chair.—Mr. W. Morley Willis read notes of two Abdominal Cases presenting some Difficulties in Diagnosis. The first was that of a woman,

aged 28 years, who was shown at the meeting and was now in excellent health. Three months ago posterior gastro-jejunostomy was done for cicatrised gastric ulcer with hour-glass contraction of the stomach. After the operation vomiting increased and intestinal obstruction occurred, so that 11 days later an exploratory laparotomy had to be undertaken. The union of stomach and jejunum was found to be perfect, but in its neighbourhood the bowels had become glued together as the result of miliary tuberculosis occurring since the first operation. Separation of the collapsed and adherent coils with division of one band was sufficient to enable peristalsis to be resumed and the patient made a good recovery. There was now no suspicion of peritonitis. The second case was that of a man, aged 59 years, whose symptoms had long suggested ulcerative colitis. He was ultimately found to be the subject of an intussusception five inches long felt per rectum, of which the exciting cause was a papillomatous growth in the sigmoid region. A free excision of 17 inches of bowel as well as a considerable portion of mesocolon was carried out and four months later the resulting artificial anus was closed by a second operation. In the six months since then he had gained a stone in weight and when seen ten months after the first operation was in perfect health.—Dr. Hunter, Mr. A. R. Tweedie, Dr. C. H. Cattle, Mr. T. D. Pryce, Dr. M. Parry-Jones, and Dr. J. Watson discussed the cases.—Mr. A. R. Anderson read a paper on the Resistance of the Urinary Bladder to Infection. He alluded briefly to five cases where there had been a foul pyosalpinx or a rectal or uterine cancer discharging septic material directly into the bladder, saying that it was remarkable how long this state of things might continue without causing actual cystitis. The conditions favouring the occurrence of cystitis were traumatism, congestion, and retention. The last was the most important, as by itself it produced every condition favourable to microbic invasion as well as congestion from the associated straining. The microbes concerned in cystitis were the bacillus coli, the urobacillus, and the pyogenic streptococcus and staphylococcus. Bacteriuria did not necessarily mean cystitis and occurred also in typhoid fever and septic osteomyelitis. The resistance of the mucous membrane was, however, such that the normal bladder was practically invulnerable.—The paper was discussed by Dr. Hunter, Dr. Watson, Dr. Cattle, Dr. F. H. Jacob, and Dr. Parry-Jones, it being pointed out that trophic lesions of the spinal cord greatly favoured the occurrence of cystitis, and Mr. Anderson replied.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 14th, Mr. Russell Coombe being in the chair.—Dr. R. V. Solly showed a microscopic specimen of a Hair affected with Microsporon Audouini, stained with the modified Gram staining method, where the decolourising was done by aniline oil containing a few drops of strong hydrochloric acid. The method was a very good one, but it took a long time to obtain a permanent specimen. For diagnostic purposes a satisfactory result could be obtained in a much shorter time.—Mr. A. C. Roper showed a specimen of the Femur which had undergone Spontaneous Fracture in the lower third of its shaft owing to tuberculous erosion.—Dr. Solly also showed a case of a child with Double Coloboma Iridis.—Dr. A. W. F. Sayres showed a specimen of Aortic Aneurysm obtained from a patient exhibited before the society nine months previously. The patient exhibited the following especially interesting symptoms: 1. Both radial pulses were absent. 2. He had suffered for four or five years from severe radiating pains around the shoulders, neck, and head, but these had ceased during the latter part of his illness. This probably indicated that the pressure on the nerves had ceased owing to the enlargement of the sac taking place in a different direction. 3. The patient died from dyspnœa, produced by direct pressure on the trachea, three months after being shown before the society. It was interesting to note that there were no symptoms pointing to pressure on the recurrent laryngeal or sympathetic nerves and that there was absence of œdema of the neck. The specimen showed an aneurysm of the size of a small cocoa-nut, which involved the ascending, transverse, and part of the descending arch of the thoracic aorta. The upper anterior segment was filled by a firm laminated clot which occupied about two thirds of the entire cavity. The aorta leading from the sac was extremely atheromatous. The innominate artery appeared to be incorporated in the sac and occluded. The right recurrent laryngeal could be traced, coming from beneath the innominate and not pressed upon, but the left was apparently involved so much in the sac that it could not be discovered and it would appear remarkable that it was not paralysed by stretching. The sternum was much eroded by the forward pressure of the tumour, the bone in places being completely divided. It seemed peculiar that there had been no pressure on the left innominate vein, as the sac had enlarged in a forward and upward direction.—Dr. G. P. D. Hawker read a paper on 100 cases of Appendicular Abscess, the record of which cases he had obtained from the notes of St. Mary's Hospital, London.

DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—A meeting of this society was held on Feb. 27th, Dr. Leslie Roberts, the President, being in the chair.—Dr. V. H. Rutherford showed a Case for Diagnosis. The patient was a young man, aged 18 years, with a large area of pigmentation over the right scapular region extending outwards and downwards over the shoulder-joint and back of the arm. The patch was covered with a few fine hairs. A smaller and less marked area was also present upon the back of the left arm. The condition had only been noticed for about one year, no history of a congenital origin being obtainable. No local irritants had been applied and the area did not itch. Microscopically, there was considerable acanthosis of the prickle-cell layer with an increased deposit of pigment. Various suggestions were put forward, among them being that it was really a congenital mole which had been latent for a long period, or that the condition was allied to acanthosis nigricans.—Mr. A. Shillitoe showed a case of Parapsoriasis of Brocq in a girl, aged 16 years, who had suffered from a scaly eruption "as long as she could remember." She had received antisyphilitic treatment without avail. The entire trunk was covered with a fawn-coloured, slightly scaly, non-infiltrated, patchy eruption.—Dr. A. Eddowes exhibited (1) a man, aged 42 years, with severe and extensive Lichen Planus who had three years previously had an acute general dermatitis; and (2) microscopic specimens from a case of Actinomycosis.—Dr. J. H. Stowers showed a little girl, aged eight years, with Multiple Warts of a most unusual type. Nearly all the growths were more or less symmetrical and of widespread distribution and the analogy to ichthyosis hystrix was in many cases most marked, as some of the projections were conical and surmounted with hairs. No other member of the family had been similarly affected.—Dr. G. Norman Meachen showed a man, aged 67 years, with Syphilitic Leucoderma affecting the root and dorsum of the penis and also the scrotum. The hypogastric region and perineum was the site of a tertiary eruption of three months' duration, the primary affection being 49 years ago.—Dr. F. Meadows Turner exhibited a case of Long-standing Lichen Planus, the oral mucosa being also affected. Several of the papules presented a linear arrangement.—Mr. G. W. Dawson exhibited a young woman the subject of Acute Lupus Erythematosus, affecting the face and the backs of the hands and fingers, of 18 months' duration.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 1st, Dr. Leonard P. Mark, the President, being in the chair.—Mr. John R. Lunn read notes of a case of Retroversion of a Gravid Uterus simulating an Extra-uterine Pregnancy.—Dr. F. G. Crookshank read a paper on the Prognosis and Treatment of Diphtheria, based principally on six years' work at the Mortlake isolation hospital. He alluded to the various factors, knowledge of which was necessary to make an accurate forecast of the course of the disease, referring especially to age incidence and the study of associated cases. He discussed in some detail the general treatment of the disease and especially that of cases marked by evident toxæmia. In these cases he recommended the hypodermic injection of strychnine with chloride of adrenalin and insisted on the advantage of differentiating clinically the cases in which the incidence of the poison was principally on the central nervous system (vagus nucleus), the heart muscle, or the kidneys.

DEATH OF A CENTENARIAN.—The *Times* of March 12th states that Mrs. Hastings Parker, lady of the manor of Swannington, Norfolk, died on March 8th in her 101st year at her residence, Dudwick House, Buxton Lammar, near Norwich. She was the only child of the late Major Charles Randall of Swannington Hall, and she married in 1858 Captain J. R. T. Hastings Parker who died in 1885.

Reviews and Notices of Books.

International Clinics: A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Pediatrics, Obstetrics, Gynæcology, Orthopædics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, &c., by leading Members of the Medical Profession throughout the World. Edited by A. O. J. KELLY, A.M., M.D., Philadelphia, with the collaboration of other medical men. Vol. IV. Sixteenth Series. London and Philadelphia: J. B. Lippincott Company. 1906. Pp. 322.

THIS volume of these well-known clinics opens with an article on Electro-Therapeutics by Dr. J. W. Rhein, of Philadelphia, who first describes in simple language the fundamental laws of electricity, the physics and mechanism of batteries, the qualities of the current generated by each kind of battery, the physiological action of the different batteries, and the method of applying electricity to the human subject both diagnostically and therapeutically. This article will be found to embrace all the main facts of the subject with which it deals. Following this, Dr. J. M. French discusses the Prevention and Treatment of Chronic Nephritis. The author takes a very comprehensive view of the morbid condition in relation to this term, remarking that every advance in the study of its pathological physiology takes us farther away from the kidneys and deeper into the still hidden processes of metabolism. In the prophylaxis of the affection apposite remarks will be found regarding food, alcohol, tobacco, and the hygiene of the skin, and a timely warning is given against the irritation caused by the excessive administration of strychnine, which the author believes is not as yet properly recognised. In the actual treatment the physician should first of all discover the form and the stage of the nephritis, next its cause, and then the extent to which the kidneys can do their work. Each case must be treated individually. Due commendation is paid to a salt-free diet and it is pointed out that the privation of salt must not be carried beyond the necessity of the case. As regards drugs conditions should be met as they arise and one rule is that constipation should never be permitted to occur. Dr. J. D. Steele next discourses on Chronic Constipation, followed by Dr. P. Groeco on Obesity, in whose article we see no mention of the treatment by drinking very hot water in sips which is sometimes useful.

In the section headed Medicine are several interesting articles. For instance, Dr. W. Porter writes on the Care of Tuberculous Subjects. Here we notice that the author does not seem to have much faith in creosote or its substitutes and predicts that in another decade these remedies will be used very little, if at all, internally. Dr. J. E. Squire next writes on Pulmonary Tuberculosis in the Middle Aged and the Aged, an article which will repay perusal. Amongst other lectures in this section we may notice one by Dr. Arthur E. Elliott on Obscure Renal Hæmaturia, under which term he includes a loosely related group of cases which possess two features in common—viz., unilateral renal hæmaturia and an obscure pathology. Klemperer advocates for these cases a purely medical etiology and holds the theory that the hæmorrhage is due to vaso-motor causes, his hypothesis being that there is paralysis of the vaso-constrictor nerves of the kidney resulting in vaso-dilatation and consequent diapedesis of blood elements. Against this theory, however, is the fact that the bleeding has invariably been found to come from one kidney only in all cases in which proper local investigation has been undertaken. The writer of the paper directs attention to unilateral chronic nephritis as a cause. An interesting lecture on Myxœdematous Infantilism and Incomplete Myxœdema is contributed by Dr. R. S. Morris who treats of the subject very fully. Dr. C. Dieulafoy writes on Syphilitic Aortitis and finally the medical section concludes with an interesting *résumé* by Dr. Leon Bernard of the Recent Progress in the Disorders of the Adrenals.

Amongst the surgical papers Dr. G. Ross writes on the Principles of Treatment or Fractures of the Lower Extremities, an article well illustrated by skiagrams; Dr. R. Hibbs on the Treatment of Hip-joint Disease; and Dr. J. Rinehart on Tuberculous Hip-joint Disease. Dr. David Wallace of the Royal Infirmary, Edinburgh, contributes an excellent article on Vesical Tumours, and then the surgical section concludes with the Treatment of Hæmorrhoids by Dr. G. Müller. In this comprehensive article the various methods of treatment by crushing, submucous ligation, Whitehead's operation, excision and suture of the wound, ligature, clamp and cautery, injection and divulsion, are passed under review and the conclusions arrived at as regards the choice of operation are: (1) that a single pile may be excised and the mucous membrane sutured. (2) Several varicose piles are best treated by the clamp and cautery or lacking that equipment by the ligature. Where hæmorrhage has been a pronounced feature hæmorrhoids are best ligated and in all cases of doubt the clamp and cautery should be used.

The remaining portion of the volume contains articles on Obstetrics, Gynæcology, Laryngology, and Otology. The present issue fully keeps up the reputation of its forerunners.

Physical Diagnosis. By E. LEFEVRE, M.D. Second edition, revised and enlarged. Illustrated. London: Hodder and Stoughton. 1906. Pp. 479. Price 10*s.* net.

THE present edition of this book has been enlarged and several fresh illustrations have been added. The plan of the book is good and should commend itself to the student. The first part, dealing with the anatomy of the trunk, contains some excellent diagrams. But while recognising the utility of the division of the abdomen into regions on a scheme familiarised by long use in anatomical works, we doubt if the author's treatment of the thorax by linear division will be of the same value. The student of physical signs, in England at any rate, will have learnt his thoracic anatomy in another way and will not, we think, be inclined to adopt this new style when he comes to the hospital ward and the out-patient room.

The usual rules regarding the examination of a chest are fully set out in Parts II. and III. and we are glad to see that the author lays great stress on the importance of inspection and palpation as aids to a diagnosis, for the student is too much inclined to resort at once to his stethoscope and so misses valuable signs which inspection and palpation, if first thoroughly conducted, would have taught him. Another point emphasised, and rightly so, is the necessity of becoming familiar with the phenomena of normal respiration. The author regards the use of the pleximeter as likely to mislead the student and gives minute instructions for the positions of the patient and examiner in percussion; and though it may be all very good we do not think that such very definite rules can be laid down for the art of percussion; for surely, where the tactile sense of the fingers and the mental reception and interpretation of the sounds produced play so prominent a part, the individuality of the examiner must form a large element. We like the description given of the difference between "dulness" and "flatness."

Under auscultation is a good account of the structure of the different parts of the respiratory tract and the influence which they have on the sounds produced. The graphic records of the physical signs, which are given on pp. 116–118, do not seem to us to be of much value, except to the originator of them, and we feel sure that the student would waste more time in committing them to memory than their

subsequent use in his notes would save. Chapter VII. of Part II. and Chapter XIV. of Part III. deal with the diagnosis of diseases of the respiratory and circulatory systems respectively; these chapters, we think, the author would have done well to omit. They are not necessary to the subject in hand and the student had far better gain the knowledge which they contain from a text-book on medicine and in the wards and out-patient rooms of a hospital.

When dealing with the methods of examining the abdomen the author gives much useful information, though we doubt if all observers will be able to say that they have "felt the appendix as a hard, cord-like mass, more or less freely moveable under the finger." Part V., which deals with examination by the x rays, is in all respects good. The reproductions of the photographs explain themselves and show what a useful aid in diagnosis the x rays under skilful management may form. The diagrams and illustrations throughout the book will prove useful to many who are studying physical signs and we thoroughly appreciate the author's desire, as expressed in the dedication of the book, to answer the oft-repeated "Why?" of the student. At no time, perhaps, throughout the medical curriculum is the student more puzzled than when he first begins to use his stethoscope and we heartily commend every effort to explain to him the causes and significance of the sounds which he hears.

We notice several errors of print, but the only ones to which it is necessary to call attention occur on p. 436, where for "Fig. 99" should be read "Fig. 102," and for "Fig. 98" should be read "Fig. 101."

The Practical Medicine Series, comprising ten volumes on the Year's Progress in Medicine and Surgery. Under the general editorial charge of GUSTAVUS P. HEAD, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume II., General Surgery, Edited by JOHN B. MURPHY, A.M., M.D., LL.D., Professor of Surgery in Rush Medical College (in affiliation with the University of Chicago). Series 1906. Chicago: The Year-Book Publishers. Glasgow: G. Gillies and Co. Pp. 583. Price 8*s.*

THERE are several valuable year-books which collect for the benefit of the medical public the cream of the very many articles published year by year but as the extent of the subjects with which they deal is large they are compelled to be somewhat brief in the extracts which they give. This is an attempt to specialise in the matter so that ten volumes are devoted to the whole domain of medicine and surgery, and this volume confines itself to the subject of general surgery. The work is on the whole well done and the editorial comments on the papers extracted are reasonable. Abdominal surgery occupies more than a third of the whole volume but all parts of the body are satisfactorily represented. The special organs, such as the ear, eye, and larynx, are not dealt with in this volume. Some work such as this is almost essential for the busy surgeon and we know none more thorough than the volume before us. There are many illustrations but some of them are rather crude.

LIBRARY TABLE.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India: Leucocytozoon Canis. By S. R. CHRISTOPHERS, M.B. Vict., Captain I.M.S. No. 26. New series. Calcutta: Office of the Superintendent of Government Printing, India. 1906. Pp. 16. Price 12 annas, or 1*s.* 2*d.*—Several examples of parasites resembling the hæmogregarine forms, so common in the cold-blooded vertebrates, have recently been found in the blood of mammals. Captain Christophers in this memoir writes on one of these parasites which has already been described by James and Bentley as seen in the peripheral blood; the author adds to the knowledge previously gained concerning them by describing their appearances in the organs. Amongst other matters the author remarks on the free motile vermicule and the formation in the marrow of the red reproductive cysts. Many new facts are disclosed and added to what was previously known regarding the parasite. Captain Christophers found this leucocytozoon, which had hitherto been reported only from Assam, to be quite common in the pariah dog about Madras; it was rare in adult dogs, though very commonly present in pariah puppies. At least 25 per cent. of the dogs picked up from the bazaar showed heavy infections. The bulk of the memoir consists in a minute description of the parasite as it occurs in the organs. With regard to its transmission from dog to dog, ticks, a protozoon parasite, fleas, a species of menopon, a spider-fly, a mosquito, may all be the means of carrying infection. He has himself been able to follow the complete sexual development of this parasite in the tick. Its reproduction occurs by the formation of true cysts containing about 30 sporozoits. Encystment takes place in the bone marrow. After escaping from the cysts the sporozoits invade mononuclear transitional cells in the marrow where they are seen as naked oval forms. These latter undergo changes and become encapsuled, whilst the host cell is altered in a characteristic way. No very great changes in the leucocyte value of the blood are produced. The work in this memoir reflects very great credit on the author; it is illustrated by an excellent plate.

Atlas und Grundriss der Traumatischen Frakturen und Luxationen. (*Atlas and Short Description of Fractures and Dislocations.*) By Professor H. HELFERICH of Kiel. With 76 plates and 238 figures in the text by B. KEILITZ. Seventh, improved and enlarged, edition. Munich: J. F. Lehmann. 1906. Pp. 370. Price 12 marks.—This valuable work is one of Lehmann's medical hand atlases, and as it has reached a seventh edition it cannot be doubted that it has served its purpose well. The enormous circulation achieved by these manuals in the original tongue and in the many foreign languages into which they have been translated enables the publishers to be very lavish with illustrations and it is difficult to imagine a small book more fully endowed in this respect. Many skiagrams are given. The book is a valuable treatise on fractures and dislocations and is very suitable for advanced students and those engaged in practice.

Traité de Chirurgie d'Urgence. (*The Surgery of Emergencies.*) By FELIX LEJARS, Professeur Agrégé at the Faculty of Medicine of Paris; Surgeon to the Hospital Saint Antoine; Member of the Society of Surgery. Fifth edition, revised and enlarged, with 904 figures from nature, of which 417 are designed by Dr. E. DALEINE and 181 reproductions of photographs, 20 plates. Paris: Masson et Cie. 1906. Pp. 1144. Price 30 francs.—We have noticed favourably several of the earlier issues of this important work and we have nothing but praise for this, the fifth edition. The chief alteration in the present issue is the addition of numerous illustrations; the text, though it has been carefully revised and brought up to date, has not been increased to any noticeable extent. Opinions will necessarily differ as to what constitutes emergencies and Professor Lejars has probably acted wisely in including certain conditions which might by some be considered a little beyond the scope of the work. The wealth of illustrations must materially aid in the elucidation of the text, for like most illustrations in French scientific works they are very good.

Aids to Medical Diagnosis. By ARTHUR J. WHITING, M.D. Edin., M.R.C.P. Lond., Physician to the Tottenham Hospital. London: Baillière, Tindall, and Cox. 1907. Pp. 152. Price, paper 2*s.*, cloth 2*s.* 6*d.*—This small book is

intended for those who already possess a knowledge of systematic medicine, whether advanced medical students or post-graduates. The plan that the author has adopted as offering the greatest promise of usefulness on these lines within the necessary limits of space is to start with the leading symptom or symptoms, as would be the procedure in the medical out-patient department of a hospital, and after arranging the diseases presenting these symptoms in groups to differentiate the members of each group so far as possible as clinical entities. The basis of the book is therefore clinical and not pathological. The section on the differential diagnosis of infectious diseases is from the pen of Dr. Herbert E. Cuff who has been for many years in charge of one of the large fever hospitals under the Metropolitan Asylums Board. The subject-matter is well arranged and selected and the diagnostic points are well brought out. Of course Dr. Whiting is obliged to be dogmatic, because he has no space to enter into explanations but he should not lay down that bronchitic expectoration is "white and frothy" without some qualifying remarks. The book is divided into nine chapters; all are good and will prove helpful. We think that the chapter on diseases of the blood and ductless glands is one of the best. The infectious diseases are ably dealt with. There are some helpful illustrations.

Sunday Observance: its Origin and Meaning. By W. W. HARDWICKE, M.D. St. And., M.R.C.P. Edin. London: Watts and Co. 1906. Pp. 64. Price 6*d*.—The object of this book is to examine the views of the various schools of thought relating to Sunday observance. The first two chapters are devoted to the discussion of the subject from a theological point of view; Chapters III. and IV. to the same from a purely historical point of view; while the last chapter is devoted to the sociological aspect of the question. After considering evidence for and against Sunday observance—from the practice of the Early Church, the writings of the Early Fathers, and the opinions of the chief reformers, historians, and other persons of literary eminence—Dr. Hardwicke comes to the opinion that we ought not to be content till full freedom and liberty are restored by the repeal of "The Lord's Day Observance Acts." He points out that "on the continent the people work six full days, knowing that on the seventh they have their freedom and liberty to take their recreation unrestricted, while our people—compelled to make themselves miserable on Sunday—have to institute other half-holidays to take its place." We must add a word of regret with regard to the phrasing in places; such expressions as "according to the John Gospel" jar.

Notes on the Care of Babies and Young Children: For the Use of Teachers. By BLANCHE TUCKER, Inspectress of Elementary Schools. With an Introduction by Dr. E. W. HOPE, Medical Officer of Health of Liverpool. London: Longmans, Green, and Co. 1907. Pp. 68. Price 1*s*.—At the suggestion and desire of many fellow-workers in the elementary schools of Liverpool Miss Tucker has put together her notes on the care of babies and young children. She dedicates her work to the next generation of Liverpool, earnestly hoping that at least some of the knowledge to be imparted to the elder girls in the schools on this vital subject may bear fruit and perhaps save a few little ones from needless suffering and misery. As Dr. Hope writes in his short introduction: "This little book will furnish teachers with one more means of imparting to their pupils information which will be interesting to them and of great use in after life." All the necessary points to make for healthy up-bringing are touched on. On the final page is a copy of a handbill *re* infantile diarrhœa issued by the medical officer of health of Liverpool. The book should certainly serve a useful purpose.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

TILIA FOOD PREPARATIONS.

(PEEK, FREAN, AND CO., LIMITED, DRUMMOND-ROAD, LONDON, S.E.)

TILIA consists of the pure protein obtained from milk containing the salts and a small percentage of fat. It is a fine yellowish-white granular powder. Our analysis of Tilia gave the following results: moisture, 12·57 per cent.; milk protein, 77·61 per cent.; mineral matters, 8·82 per cent.; and fat, 1·00 per cent. This pure protein is the basis of the Tilia food preparations. Tilia cocoa, for example, is an intimate mixture of cocoa with milk protein. According to our analysis the amount of fat present is 7·20 per cent., which represents the addition of about 25 per cent. of cocoa to the protein. Tilia biscuits (plain) gave on analysis the following results: moisture, 7·34 per cent.; protein, 22·93 per cent.; carbohydrate, 63·70 per cent.; fat, 4·00 per cent.; and mineral matter, 2·03 per cent. This is a very satisfactory biscuit, perfectly cooked, of good texture and crisp. It will be seen that the amount of protein is considerably augmented, a fact, of course, which contributes very materially to the nourishing value of the biscuit. A biscuit prepared without Tilia, but with the same flour, showed on analysis 8·80 per cent. of protein, so that in the Tilia biscuit the protein is increased by nearly 300 per cent. The sweet Tilia biscuit contains, we find, much the same amount of protein, the actual figure being 20·46 per cent.; it is an excellent biscuit with high nourishing value. The Tilia biscuit (diabetic) gave the following results on analysis: moisture, 8·60 per cent.; protein and gluten, 61·70 per cent.; fat, 25·40 per cent.; and mineral matter, 4·30 per cent. The biscuit contained no starch or carbohydrate. The fat proved to be derived from the egg. The biscuit thus gives satisfactory results from the point of view of the requirements of sufferers from diabetes. The foregoing remarks apply to samples which were submitted to us for opinion by the above firm. We further submitted to analysis samples of plain Tilia biscuits bought by ourselves in the open market. The total protein found amounted to 21·16 per cent. Similarly we purchased samples of Tilia diabetic biscuits. The protein found was 60 per cent. and on testing for starch and sugar the result was absolutely negative. It will be seen that the results of the examination of the purchased samples coincide with those obtained with the samples submitted directly to us by the manufacturers. We regard these preparations as an excellent addition to the list of specially nourishing foods.

(1) "TABLOID" XAXA AND COMBINATIONS; (2) SOLUBLE IRON ARSENATE; AND (3) SOLUBLE BISMUTH CITRATE.

(BURROUGHS, WELLCOME, AND CO., SNOW-HILL BUILDINGS, LONDON, E.C.)

1. Tabloid "xaxaquin" is the quinine salt of acetyl salicylic acid and is said to combine the therapeutic activities of quinine and salicylic acid. As is well known, acetyl salicylic acid does not lead to the digestive disturbance and nervous effects to which the administration of salicylic acid or the salicylates sometimes gives rise. Acetyl salicylic acid is also combined with the analgesic and antipyretic phenacetin, while another tabloid contains xaxaquin with xaxa, a combination which is regarded as a prophylactic in catarrh and influenza, whilst giving benefit also in rheumatism and gout. 2. The soluble iron arsenate occurs in beautiful greenish scales. It is an elegant pharmaceutical product and is

quite soluble in water. 3. The bismuth citrate tabloid is a stable salt which dissolves also in water in a satisfactory manner. It is useful for the rapid preparation of a solution corresponding to the B P. solution of bismuth and ammonium citrate.

CEREBOS SALT.

(CEREBOS, LIMITED, 3, MAIDEN-LANE, LONDON, E.C.)

There is no mystery about cerebos salt. It is simply salt to which has been added a definite proportion of phosphates. This addition serves two important ends—first, it prevents the salt from becoming wet and from caking; and, secondly, it adds substances of distinct dietetic importance. The added phosphates convert the deliquescent magnesium chloride present into dry magnesium phosphate and so cerebos salt indefinitely preserves its fine dry powdery state. It is therefore both a culinary and a dietetic improvement. We are sometimes asked by correspondents as to whether there is anything harmful in cerebos salt, the question having been prompted probably by the fact that in water it yields a turbid fluid due to insoluble phosphates of lime and magnesia. To this we can reply in the negative.

BISCOLS (FRAUDIN).

(AGENCY: ROBERTS AND CO., 75, NEW BOND-STREET, LONDON, W.)

Biscols are biscuits made in finger shape which are prepared without flour and containing poplar charcoal, peroxide of magnesium, albumin, and sugar. They are reported to have given good results in the treatment of gastro-intestinal affections. It is also said that their anti-toxic action has been demonstrated in cases of poisoning, as, for example, by fungi. Our analysis confirmed the statement in regard to their composition. The biscuits give off bubbles of oxygen when soaked in weak acid, so that it may be assumed that nascent oxygen is produced when the biscuit is brought into contact with the acid juices of the stomach. The charcoal is, of course, absorbent.

EXSICCATED EGG PRODUCTS.

(THE ARIOSO COMPANY, LIMITED, 36 AND 37, KING-STREET, CHEAPSIDE, LONDON, E.C.)

Many attempts have been made at various times to reduce more or less fluid food preparations to the dry state but in most cases the heat employed for the purpose alters the physical condition of the constituents; the foods, in fact, after drying at a high temperature are no longer in a raw or "live" state. This is not the case with the preparations before us. They are obtained by submitting a fine spray of the fluid food to a current of just warm air. The result is that the moisture in the spray is abstracted and a fine powder of egg or of milk, as the case may be, is deposited. The process is extremely ingenious and promises to introduce a new method of preserving certain foods in the dry state of great dietetic and economic importance. The dried yelk of egg is a beautiful yellow-coloured powder, perfectly uniform throughout and free from lumps. The albumins are not coagulated nor is the egg fat-free but in the state of emulsion just as it exists in raw egg. The powder when beaten up with water yields a liquid identical with beaten-up raw yelk. Our analysis gave the following results: protein, 35·10 per cent.; fat, 59·6 per cent.; moisture, 2·50 per cent.; and mineral matter, 2·80 per cent. These results show that the preparation is pure yelk of egg with simply the moisture abstracted. Further, the proteid and fat are in the same raw condition as in the egg itself. Similarly, whole egg powder is obtained which according to our analysis has the following composition: protein, 53·60 per cent.; fat, 37·40 per cent.; moisture, 5·8 per cent.; and mineral matter, 3·20 per cent. This proved to be in the same satisfactory condition as the dried yelk—that is, the proteins and fat occurred in the same physical state as in the fresh egg. Further proof of this is afforded by the fact that excellent omelettes and custard can be made with the preparation. Lastly, the white of the egg gave on analysis the following results: protein, 84·80 per cent.; mineral matter, 5·80 per cent.; fat, 0·40 per cent.; and moisture, 9·0 per cent. The albumin was absolutely in an uncoagulated state and when dissolved in a suitable quantity of water resembled the ordinary fresh white of eggs. The introduction of these products marks a step of great dietetic importance since the process not only preserves the foods against change but in a condition identical with their natural state. This method promises to solve the economic questions of the conservation and transportation of certain of our most valuable foods, such as milk and eggs, and the supply of the latter at all seasons.

FOODS FOR THE DIABETIC.

(BONTHRON AND CO., 50 AND 52, GLASSHOUSE-STREET, REGENT-STREET, LONDON, W.)

The progress made in regard to the preparation of food specially suited to the needs of the diabetic patient has been very satisfactory during the past few years. So many improvements have been effected that the patient has a very wide choice of foods which, while meeting his special pathological case, are also palatable. The preparations recently submitted to us by the above firm illustrate this. We have examined in all some 12 preparations and the claims made in regard to them are confirmed by our examination. Casoid bread is made from pure milk protein and shows absolutely neither sugar nor starch. Casoid meal bread contains an addition of a small proportion of bran which, of course, carries in a trifling amount of starch as our analysis showed. "Biogene" wafers represent a quite new preparation which is very palatable and their general quality is such as to dismiss any impression that they are made for a special dietetic purpose. Other preparations examined with equally satisfactory results were almond bread, bran bread, casoid fingers, gluten biscuits, long almond bread and biscuits, and so forth. Lastly, the preparations included a diabetic chocolate of excellent flavour yet without sugar or added flavouring and a "diabetic marmalade" free also from sugar and comparing very favourably as regards flavour and consistence with ordinary marmalade.

CURRY POWDER.

(W. MUADOCK AND CO., 16, 17, 18, CORN EXCHANGE BUILDINGS, 15, SEETHING-LANE, LONDON, E.C.)

This curry powder is stated to be manufactured in Madras and we find that with it a curried food may be prepared presenting the attractive and peculiar characteristics of the famous Indian preparation. It is pleasantly aromatic and the flavour is agreeably piquant. The materials chosen in the formula are evidently of excellent quality, forming a compound which is decidedly in advance of many of the "washy" curry powders which are sold.

VEGETABLE BUTTER "PALMINE."

(THE VEGETABLE BUTTER CO., 6, TRINITY-SQUARE, LONDON, E.C.)

Palmine is described as consisting of highly refined cocoanut oil extracted from the best qualities of copra chiefly in the English colonies. According to our analysis it is certainly a very pure fat, the only constituent present besides fat being a trace of moisture. The melting point is 25° C. and the fat begins to solidify again at 22° C. It is harder than butter, is beautifully white, and has a peculiar yet pleasant flavour. It dissolves in the mouth with a curious cooling effect. According to the ease with which this fat saponifies there is no reason why it should offer any difficulty to human digestion. It makes an excellent substitute for butter for cooking purposes. It is clean and does not get rancid. Sold under its proper name there can be no objection to this article taking a place in the list of our daily foods.

THE LANCET.

LONDON: SATURDAY, MARCH 16, 1907.

The Alleged Growth of Insanity.

ON Dec. 27th, 1906, the *Times* published a long article dealing with the problem of the growth of insanity. Earlier in 1906 the same correspondent had written in that newspaper two articles on the subject, each of which had been followed by letters from medical experts. Dr. DAVID NICOLSON summed up his view of the matter at that time in an excellent letter which appeared in THE LANCET of June 9th, 1906, p. 1635. In this letter he discussed the subject in a thoroughly judicial spirit, and in so far as it seeks to interpret the meaning to be put on the latest statistics of the Commissioners in Lunacy in this matter it was a valuable expression of opinion and will repay reading now, when the newspapers teem with allusions to the alleged growth of insanity.

The writer in the *Times* in his last communication summarised his propositions under six headings, of which the following are abstracts:—

(*a*) That in the last 60 years the proportion of certified insane persons to the sane population has grown from 1 in 760 in 1844 to 1 in 272 in 1905 and that in addition to this there is a large fringe of "borderland" cases.

(*b*) That insanity in all cases and in all its forms is probably largely brought about by physical changes "in the blood or in the fluids or tissues of the brain," and that these changes call for complete investigation by "exact methods of chemical and physical research," supplemented by the skill of "highly trained clinical physicians."

(*c*) That the commonly accepted "causes" of insanity, such as inheritance, &c., are conditions constantly affecting large numbers of people who do not become insane and that no "causation" in the proper sense of the word can be attributed to them. The *vera causa* in every case must be some changed condition of the blood or tissues of such a kind as to produce disturbance of function in the brain cells which are subservient to thought, and also, if sufficiently severe or long continued, to produce degeneration of their structure.

(*d*) That the common jargon about so-called "psychology," "mind," "mental disease," and so forth, is a mere incubus upon science.

(*e*) That the organisation of asylums is not calculated either to attract or to encourage young medical men whose tendencies are in the direction of research.

(*f*) That the insane being secluded from the outside world and from general medical observation have been practically untouched by the general progress of medical science along other lines and that there has been no substantial advance of knowledge with regard either to the causation of insanity, to the recognition of warnings that it may be impending, or to the discovery of means by which it may be prevented or cured.

We propose to criticise some of these propositions briefly, especially as we find them accepted as proved in some of our lay contemporaries. Figures are often very misleading, and there is little doubt that the real increase of insanity is by no means so alarming as the writer in the *Times* and his nervous followers would have us believe; and further, there are well-recognised causes of the increase, which should tend to allay public apprehension. The public have greater confidence in the treatment that the insane receive and relatives of patients more readily place them under care. Again, many of those infirm and aged persons whose mental failure is rather one of decay than actual disease are now removed to asylums, whereas in former times they were treated in their own homes or in the infirmaries and escaped official notification as insane. We do not consider that Dr. NICOLSON'S differentiation between the "actually" insane and the "potentially" insane, which he drew in the letter to which we have already referred, pretends to do more than to afford an explanation of the large increase in the number of pauper or rate-paid lunatics, seeing that there has been practically no increase in the proportionate number of the *private* class of lunatics. For although it is true that there are many of the "potentially" insane in asylums who for the moment might be liberated, nevertheless if this were done the stress of life would soon make them "actually" insane, and therefore it is clear that they are of more value to society if they remain as workers in asylums. The real question that we have to ask ourselves is, What proportion of the "potentially" insane in our pauper asylums ought never to have been sent there from workhouses or elsewhere? And in this relation the influence of the four-shilling capitation grant must necessarily be a serious item for consideration.

We cordially agree that the time has come when the country and the legislature should realise that some endeavour should be made to face the problem of insanity. For, without disputing over misleading statistics, it is certain that much might be accomplished even with the knowledge which we already possess and which is admitted by all authorities. We do not agree with the *Times* correspondent in his sweeping condemnation regarding the progress of psychological medicine, for much real advance has been made. To have banished many of the old ignorant ideas and to have laid a sound foundation for future knowledge is work which is not easily accomplished. Every man believes that he understands and is capable of discussing this problem of insanity but the solution is by no means so simple as some would have us believe. Even the *Times* correspondent, excellent though some of his propositions would seem to be, falls into the grievous error of urging that "psychology" should be banished as "a mere incubus upon science." It is this ignorance of what a normal mind should be that has hampered progress in the past, for of what value is the study of pathology apart from physiology? If the writer in the *Times* refers to arm-chair theorising when he speaks of psychology his criticism to a certain extent might be accepted, nevertheless the fact remains that the normal mind must be understood before we can hope to interpret correctly its indications of disease. In THE LANCET of Dec. 1st, 1906, p. 1525, we urged the importance of providing wards in general hospitals for the treatment of early cases of mental disorder, as this would supply a double want Such wards would benefit the individual by saving him from a serious breakdown and they would benefit the community by supplying material to physicians and pathologists whose training has especially fitted them for the investigation of disease. Work, and excellent work, is being accomplished by many medical officers to asylums, but the

field for research is so wide that in order to make rapid progress other opportunities for study should be opened up. Insanity is a large subject and it would be as unreasonable to throw the burden of treating it upon the general physician as it would be to expect him thoroughly to be versed in surgery or obstetrics. But if opportunities such as we have already indicated were given for systematic study and treatment of early cerebral disorder it would not be long before able men were forthcoming to undertake the work.

University College, London: A Chapter in Medical Education.[1]

THE history of University College, London, forms a notable chapter in medical education, and we are all indebted to Mr. RICKMAN GODLEE for a publication of unusual interest in the shape of an annotated and illustrated edition of the introductory lecture which he delivered at the College on the occasion of the opening of the October session, 1906. University College, London, was founded in 1826, the deed of settlement being dated Feb. 11th of that year, and was the outcome of a feeling that London, the largest city in the world, ought to have a University and that such a University ought to be free from the tests which made Oxford and Cambridge inaccessible to those whose religious views diverged from a certain pattern. University College, as thus projected, had much the programme before it that would have lain before Westminster University had that promising scheme developed into reality; it was termed the University of London in the deed of settlement, and it would have served London as the Universities of Liverpool and Birmingham serve those great provincial capitals, while its position in the metropolis would have secured for it support from outside. But University College did not develop in this way, for the unanimity of those actively engaged in removing the reproach from London of being without a University was immediately put to the trial—the inevitable religious trial. Absence of tests and religious teaching was revolting to many who none the less ardently desired a University for London, and the founding of King's College, London, followed as a theological protest. As it would not have been fair that one institution should possess the power of granting degrees and not the other, and as it would have been ridiculous to start two new universities simultaneously, University College resigned its very sound pretension to be regarded as the University of London, and became a constituent college of the University, now called "the old University" which started in 1836 as an examining board. The successes and failures of the old University are fresh in the memories of our readers who will remember the successful arguments for the reconstitution of the University, as well as the various allegations against the utility of the intricate scheme of consolidation and conversion under which the University has worked since. University College became incorporated with the new University as it had been with the old. But on account of the fear of exciting jealousies in the other medical schools of London the University could not absorb the hospital and the teaching of advanced medical subjects. A new corporation was therefore founded, consisting of the hospital and the School for Advanced Medical Studies which are separated from University College but which, like the other medical schools of London, are still schools of the University.

Mr. GODLEE tells the story in concise and readable form, with most interesting references to the early founders of the College. We are not quite content with his description of the poet CAMPBELL as a person who "gained a precarious livelihood by a good deal of anonymous prose writing, and a rather small output of verse appearing over his own name." When CAMPBELL in 1825 wrote his famous letter to the *Times* (part of which Mr. GODLEE quotes) on the subject of the University of London he had for five-and-twenty years held a recognised and high position as a man of letters, had lectured on poetry at the Royal Institution, and was receiving not only a considerable income from his works but also £500 a year as editor of the *New Monthly Magazine*. In the year following that in which his letter appeared he was elected Lord Rector of the University of Glasgow, an office to which he was twice re-elected, on one occasion against the candidature of Sir WALTER SCOTT. The author of "The Pleasures of Hope" and of "Gertrude of Wyoming," not to speak of many very delightful minor poems, needs no apology for not having been more prolific, and we regard his name as the one which adds lustre to the University. His refined and beautiful features, as pictured in the book, are at once, we think, a protest against the account of him, and an amusing foil to the primness of JOSEPH PRIESTLEY, the self-satisfied look of BENTHAM, the smugness of RICARDO, and the ugliness of BROUGHAM. For the interest of Mr. GODLEE'S book is much enhanced by pictures and plans of the various old and new buildings connected with the College and by a large number of well-executed portraits. That of Lord LISTER merits especial praise as a reproduction of a most successful photograph. The picture of Sir CHARLES BELL, "with a curl on the middle of his forehead," seems to us a little cruel; we should almost prefer to have no presentment of him save in his works, so unlike is the man to our conception of him. These pictures of past and present heroes of the College are accompanied by contrasts between the time at which the hospital was founded and the present day; between the scope and methods of medical education then and now; and between the theological requirements of the older universities and the part taken by the founders of the new one in opening a door for degrees to students who were prevented by tests from acquiring them elsewhere. Mr. GODLEE thinks that there is some analogy between the intolerance of those days and that of our own time, and glances at the sects which are now at daggers drawn as to the quantity and quality of the moral and religious instruction to be given to, or withheld from, the children of what we call "the lower classes." He anticipates the termination of this dispute in a purely secular education in primary schools, and we rather gather that, in his judgment, this would be the best solution which could be arrived at. We should be much inclined to agree with him if we could feel any confidence

[1] Past, Present, and Future of the School for Advanced Medical Studies of University College, London, by Rickman John Godlee, Holme Professor of Clinical Surgery in the College; Surgeon-in-Ordinary to H.M. the King. London: Bale, Sons, and Danielsson. 1907.

that the education of the primary schools would be conducted upon the same lines of direct utility for a purpose definitely in view which will evidently govern the work of the great school for which Mr. GODLEE is the spokesman. The students who come there will come with minds in tune, and they will receive just the instruction fitted to prepare them for the duties in life which they intend to discharge. This definite and practical aim is what is so difficult to obtain in the primary schools of the people.

The rulers of University College and of its attached hospital, like those of some other centres of medical education in the metropolis, have determined to surrender the preliminary subjects forming part of that education to the newly constituted University of London and to reserve their own forces for the conduct of the advanced teaching only; that is to say, for the conversion of students of science into practitioners of medicine. As our readers know, we believe that such a separation of the preliminary from the advanced subjects is likely to improve the teaching of both, and, especially perhaps, of the former which after all form the foundation upon which must depend the safety of the superstructure. In the schools as they were until lately organised the preliminary subjects were necessarily committed to teachers in whose ultimate hopes and aspirations they could fill but a subordinate place, and who, in many cases, would look forward with some eagerness to escape from them. In such conditions the consequent want of enthusiasm would sometimes be liable to extend from the teacher to the class, and the studies in question were in some danger of being regarded as impediments to the learning which the student most desired to receive and which the teacher would have been better pleased to impart. The individual schools, moreover, were only in a few instances large enough to afford to the teachers of preliminary subjects a class either sufficiently numerous to be stimulating or sufficiently remunerative to afford strong inducements to exertion. We believe that most of the London medical schools will be well advised to surrender instruction in the preliminary subjects, and it may reasonably be hoped that under a new *régime* the teachers of such subjects will hold more distinguished positions and will receive larger payments than have hitherto usually fallen to their share, and that a new sense of the importance of their duties will tend to a general enhancement of their dignity and usefulness.

The Martyrs of Science.

WE published last week an obituary notice of the late Dr. ALLAN MACFADYEN, whose valuable life was cut short at the age of 46 years from Malta fever, the infection being contracted during his bacteriological research work. The trite observation that "every pearl has its price" can have no more forcible illustration than those which may be gleaned from the story of scientific progress. Every step that knowledge takes is over the forms of those who have fought and have fallen in order that it may be taken, and there is no advance perhaps in any direction of scientific progress which has not required its pioneer victims to pave the way. There is little glamour about the fate of the silent martyrs offered to the relentless god of Progress; no rites or ceremonies attend the sacrifices that he demands. Here and there perhaps one of the martyrs of science, by the great results achieved in his lifetime, attracts the attention and the applause of his fellow men. For every such one though there are a hundred quietly following the path of their duty, unregarded, unrewarded, and, save for the little upward step that their toil has helped, to the end unknown. Such workers there are in every branch of scientific endeavour, be it in the factory, the engineering shop, the cable ship, the chemical laboratory, or the hospital ward. No poet devotes his strains to this army, and the ubiquitous orator of the public press is prone to belittle its work. Yet mankind owns no finer heroes than some who have fallen from the ranks of this student army overwhelmed by the weight of the physical and spiritual obstacles against which they struggled. It is a strange thing that the applause of men greets only those who fight with men. They who battle with the enemies of man, with disease, with accident, with unknown forces and unknown seas and lands, these men must fight and, if necessary, die almost unnoticed by their fellows. The soldier or the sailor, fine though the patriotism may be that animates his breast and glorious the courage that bears him through, owns no such noble purpose as belongs to him who battles on the side of all human kind.

THACKERAY wondered whether men were naturally cowards at heart that they give such admiration to physical bravery over all other qualities; indeed, it leaves the mind puzzled if we seek to understand how it is that spiritual valour has comparatively so little appreciation amongst us. Perhaps the belief that spiritual valour alone supports the army of workers in the battle of scientific progress keeps public sympathy so cool where scientific work is concerned, but if this is so better knowledge of the facts should dissipate the belief. There is no real difference between the risk of death taken in the battlefield and that taken in the laboratory. In each case death is possibly part of the programme, though in one the risk is met in hot blood and the other in cold. And in each case the courage required is moral as well as physical, though in scientific work the moral side is more obvious. It is only the man who has himself felt the need for courage who realises the fortitude of those who labour on when the end seems more and more doubtful, when hope seems faint and ill-supported, and when the help of companions' understanding or encouragement is lacking. In such circumstances as these it is spiritual valour that keeps the worker in scientific fields still steadfast to his task. This is the valour that upholds the explorer, the chemist, the bacteriologist, and it is by courage of this kind that these men, unfortunately only too often, are brought to fill a grave that may well be termed a martyr's. The names of some such martyrs will come readily to the minds of our readers, although no roll of honour commemorates them. They gave their lives, often away from their native country, fighting the foes of their countrymen. Those foes were foul diseases and pestilential conditions of life and soil. Thousands of human lives have been saved already by their endeavours, and we look forward confidently to the time when vast countries devastated now by malarial scourges will be

peopled by healthy and prosperous populations. The time must soon come when the conquests of science will cease to rank low beside the martial acquisitions of war. At the present time a town sacked brings more credit to the operator than a huge area redeemed by sanitation in the strife between science and uncontrolled natural forces. Certainly one modern statesman has pointed out the nation's enormous indebtedness to scientific workers in our possessions beyond the seas, but Mr. CHAMBERLAIN'S words were striking because they were so rare. It will be some time before the public, at any rate in this country, learns to appreciate scientific work.

Annotations.

"Ne quid nimis."

THE NOTIFICATION OF CEREBRO-SPINAL FEVER.

THE notification of epidemic cerebro-spinal meningitis has been introduced into the county of London, as we said last week. The county of London has a population of nearly 5,000,000 and the departure affords an opportunity to the sanitary service of the metropolis of accumulating data and experience on a scale which could not easily be obtained elsewhere in the world. If the medical profession in London coöperates cordially and conscientiously in this experiment with the medical officers of health and if these officers in turn afford to Sir Shirley F. Murphy and his staff every possible assistance in filling up accurately the tables which have been circulated, material progress in our knowledge of this still mysterious malady should be made. Great responsibility will rest with the officers of the London County Council in grouping the somewhat miscellaneous data which will doubtless reach them and upon discrimination in this grouping will depend the value of the data for educational purposes. To the vast majority of medical practitioners in this country cerebro-spinal fever, so far as practical experience goes, is a closed book, and thus reliance will have for the most part to be placed upon diagnosis from book knowledge and by the method of exclusion, together with such assistance as can be afforded by those who have had opportunities of seeing cases of the disease. But, as we are told in the memorandum which has been circulated by Mr. W. H. Power, the medical officer of the Local Government Board, although typical cases may prove easy of diagnosis departures from the type are so common that the malady has at one or another time been mistaken for sunstroke, enteric fever, pneumonia, sore-throat, or influenza. It is in these circumstances that notification may be likely materially to aid diagnosis by bringing to the knowledge of medical officers of health such groupings of anomalous cases as to lead to the suspicion that cerebro-spinal fever may be the disease in question. Furthermore, we are likely by carefully recorded information to ascertain somewhat more definitely whether or not the disease is communicable from person to person and, if so, what is the degree of such infectivity. It will be well in this connexion if a healthy scepticism be observed with regard to the evidence, more especially lest any group of cases evincing apparent infectivity may eventually be proved to be cases not of cerebro-spinal fever but of influenza or enteric fever. If the forms which have been circulated by the London County Council are properly filled up and the number of persons exposed in each invaded home are recorded the combined statistics should afford us much information not only as to the question of infectivity but also as to the fatality-rate and period of incubation of the disease. Doubtless, too, facilities will be afforded either by the borough councils or the London County Council for the examination, when desirable, of the nasal and oral mucus, as also, in cases where lumbar puncture can be conveniently and safely performed, of the cerebro-spinal fluid. It will be of interest to learn to what extent cases of meningitis other than cerebro-spinal are notified and what at the end of the six months has been the cost of the experiment. The County Council has certainly been well advised to undertake this work and we have no doubt that it will present the data procured in a thoroughly scientific aspect. It may eventually be found both helpful and instructive if the results obtained in London, Glasgow, and Belfast are put together for comparative purposes.

HARD WATER-SUPPLIES.

IT is a popular but probably wrong impression that hard drinking waters are prejudicial to the health and, moreover, are injurious to delicate skins when used regularly for ablutionary purposes. Gout, kidney disease, and dyspepsia by an interesting line of reasoning have been supposed to be due to, or aggravated by, the drinking of excessively hard water. Some mysterious connexion between the chalk of the water and the formation of "stone" in the kidney or of "chalk" in the joints in gout is a favourite speculation with many, but in the history of the world's water-supplies there is no trustworthy evidence that the drinking of hard water influences for worse these diseases. The idea is, in fact, chimerical, especially when we bear in mind that many waters of repute in gout and kidney disease contain as their principal constituents lime salts. The chalk of "chalky gout" is, of course, due to urates and not to lime. Some years ago a commission of experts in France came to the conclusion on considerable evidence brought before them that a moderately hard water was the best and that persons residing in districts supplied with such water had a better physique than those living in districts in which soft water was used. Similar conclusions were expressed by a committee appointed in Vienna to investigate the same question. In our own country the Royal Commission on Rivers Pollution in 1876 concluded on this subject after a long inquiry that where the chief sanitary conditions prevail with tolerable uniformity the rate of mortality is practically uninfluenced by the softness or hardness of the water supplied to different towns, and the average rate of mortality in the different water divisions varies far less than the actual mortality in the different towns of the same division. It has further been stated that the very soft water supplied to Glasgow from Loch Katrine has led to an increased prevalence of rickets but there is not a particle of evidence in the health returns of the city that such is the case. A change of drinking water does, however, affect occasionally some persons in the form of a disturbance of the gastric organs. Thus symptoms of common dyspepsia have been remarked in persons who have had occasion to adopt temporarily a soft drinking water-supply after being accustomed to drinking hard water and *vice versâ*. Pure distilled water is known to cause gastric catarrh by reason of its power of penetrating the tissue cells, which then swell. Obviously such a process in the stomach may lead to gastric catarrh. On the whole, therefore, there does not appear to have been any serious count sustained against the use of hard waters on the score of their affecting unfavourably the health of the drinker. The innumerable inconveniences experienced by every householder who is provided with an excessively hard water-supply form another question, and withal a serious one. The constant blocking of the hot-water pipes with lime salts entailing the frequent cleaning of the boiler and the pipes, the

latter sometimes having to be removed altogether, is a real hardship to householders served by a very hard water-supply. There can be little doubt that such being the case the risk of an explosion occurring in the kitchen boiler is immensely increased. We have seen pipes which were taken out of a house in the district supplied by the Kent Company and which had only been in use a few months so thickly lined with chalk as hardly to permit of the passage of a pen-holder through them. The waste caused by hard water is enormous, the life of utensils and pipes is considerably shortened, and the loss of heat is very great. The deposition of lime salts practically destroys the conducting power of the metal of cooking vessels, kitchen boilers, and pipes. For cooking purposes, also, hard water is objectionable; it hardens the tissues of vegetables and meat and thus tends to make them indigestible. These facts furnish ample reason for giving serious consideration to the proposal to soften, or partly to soften, certain of the very hard water-supplies in England. If it can be done in some places, of which the Colne Valley is an example, with economy and with great advantages to the consumers it can be done in all.

HATPINS IN PUBLIC VEHICLES.

A FREQUENT correspondent writes: "Most men, even those least acquainted with the details of feminine attire, are aware that women who wear hats retain them in position by transfixing them with two or more 'hatpins,' or fine steel skewers, about eight inches in length, having more or less ornamental knobs or buttons at one end and tapering to sharp points at the other. These pins now and again figure in the accounts of proceedings at the police courts as weapons used by women of violent temper either in attacking an enemy or in defending themselves against arrest by the police. I consider that they are besides a source of danger to the general public through the negligence rather than the malevolence of their wearers. In the headdress of a well-dressed woman they are useful for the purpose for which they are intended and are not conspicuous except as ornaments, the button or knob alone being exposed to view, the point either concealed or only slightly projecting. Slatternly and untidy women, however, not exclusively of the poorer classes, wear them in such a manner that two or three inches, or even more, of their sharp ends project beyond the hat or protrude themselves through the coils of hair which the hats surmount. When the wearers are nursemaids mistresses will do well to see that their children's eyes and features are not exposed to danger through the slovenliness of their servants, but, of course, when the mistresses are slovenly also no such supervision is to be expected. The adult public, including the sex to which hatpins are not a necessity, are principally concerned with those worn by persons with whom they are, literally, thrown in contact when travelling in omnibuses, tramway cars, and trains. In all these means of conveyance the tendency is towards increased speed and rapid stopping and starting, so that we frequently see those entering or leaving a carriage stagger against one another, or against those seated, and scarcely less often a sudden jerk causes a row of seated passengers to sway more or less violently according to their individual weight and stability. It may be suggested that if all sway in unison, actuated by the same impulse, their heads will remain at unchanged distances from one another; but, in fact, all are not affected alike, and a man who remains tolerably rigid may have the head of a less stalwart neighbour brought into very close proximity with his own. I speak from personal experience and hence this letter. He may receive nothing more serious than a blow from a well-padded skull, but if there is a spear as sharp as a needle to accentuate such a blow, a needle, moreover, which has certainly not been sterilised in the ill-kept hair through which it has passed, he may quite conceivably be hurt." We have drawn attention to the dangerous contingency before in our columns and the risk has not decreased with the advent of motor omnibuses, the passengers of which are more liable to be rolled against one another than are those in any other class of public vehicle. As a matter of fact, no serious accident has, so far as we know, yet happened, but as motor omnibuses are increasing we may some day hear of a traveller summoning up courage to remonstrate with a dangerous neighbour. On such an occasion he might fittingly point out to her that her hatpin is but a means to an end and is no more intended for exhibition, so far as its mechanical details are concerned, than the other apparatus by which she and her masculine fellow travellers retain their garments generally *in situ*. More often, however, bashfulness will prevail and the threatened person, after an apprehensive glance or two at the danger, will either resign himself to his fate, hoping for the best, or will take an early opportunity of changing his seat. Some day—it will not be till after an accident has occurred—we may see a negligent lady figuring as a defendant in a court of law, and in this connexion we may remind married men of their own liability to pay damages incurred by their wives. Pins are obtainable, we believe, having counter-knobs to screw on to their points, but they are unpopular because they are difficult to use and also more expensive, although, on the other hand, they afford a double opportunity for the display of ornament. In the absence of any more ingenious device than these the careful adjustment of pins of a suitable length would appear to be the only remedy possible.

INTRACTABLE HICCOUGH DUE TO LATENT TUBERCULOSIS OF THE PONS AND MEDULLA.

AT a meeting of the Société Médicale des Hôpitaux of Paris on Jan. 18th M. Henri Lamy and M. Maurice Cleret reported the following interesting case. A man, aged 43 years, was admitted into hospital on Oct. 26th, 1906. He had enjoyed good health until four years previously when he had left pleurisy. Subsequently he suffered from cough and grew thin. On admission he was emaciated and coughed and expectorated considerably. The sputum was purulent. Examination of the chest showed dulness at the left apex in front and behind and at the right base. The respiration was cavernous at the left apex and there were numerous moist râles at the right apex. At the right base there were pleural friction and diminished vesicular murmur. The case ran the ordinary one of fatal pulmonary tuberculosis, but about a fortnight before death, which occurred on Dec. 28th, the patient complained of persistent hiccough. This continued until the last two days of life, when delirium and vomiting appeared. Coma followed and Kernig's sign was obtained. Thus there were typical symptoms of meningitis on these days. The necropsy showed extensive pulmonary tuberculosis and no other visceral lesions. There was recent miliary tuberculosis of the cerebral membranes. A large tubercle of the size of a small pea was found on the posterior surface of the inferior part of the left inferior cerebellar peduncle. It had hollowed out a cavity by pressing aside the fibres of the peduncle. Its internal and superior extremity was in contact with the floor of the fourth ventricle. Sections of the brain showed no other lesions except a tubercle of the size of a hazel-nut at the lower part of the pons. It is noteworthy that these tumours remained quite latent until a fortnight before death when the intractable hiccough occurred. At the following meeting of the society M. C. Gandy and M. Lévy-Valensi reported a similar case in a man of the same age, who

was admitted into hospital on Dec. 13th, 1906. He had had sero-fibrinous pleurisy five months previously. After this he suffered from cough and loss of flesh. Eight or ten days before admission continuous headache began. In the streets the patient forgot his way. Three days before admission hiccough began. Five, six, or eight times a minute violent contractions of the diaphragm occurred accompanied by characteristic closure of the glottis and quivering of the whole abdominal wall and lower part of the thorax. The patient was apathetic and with difficulty could be made to answer "yes" or "no" to questions. He muttered more or less incomprehensible words. At night he was delirious. There was slight tremor of the upper limbs. The temperature was a little raised and the pulse was rapid and regular. There was no stiffness of the neck and the pupils were regular. On the following day Kernig's sign was obtained. The patient became torpid and died comatose on Dec. 19th. Intractable vomiting persisted by day and by night until the end. Hiccough is evidently a rare variety of the disturbances of the respiratory rhythm which may occur in meningitis, such as pauses, polypnœa, and Cheyne-Stokes respiration.

FEBRUARY AT HOME AND ABROAD.

—	Highest temperature.	Lowest temperature.	Mean maximum temperature.	Mean minimum temperature	Mean temperature for month.	Range of temperature.	Days with rain.	Total fall of rain in month.
	Degs.	Degs.	Degs.	Degs.	Degs.		*	Ins.
Scilly	52	35	47	40	43·6	7	13	1·65
Jersey	52	27	44	36	40·2	8	8	1·85
Torquay	53	25	45	35	39·9	10	8	1·53
Bournemouth ...	53	23	45	34	39·1	11	7	1·31
Sandown, I.W. ...	52	26	45	35	39·6	10	8	1·48
Bath	53	17	44	30	37·2	14	8	1·25
Manchester ...	54	21	43	33	38·2	10	11	2·04
Birmingham ...	53	20	42	32	36·8	10	8	1·11
Nottingham ...	54	18	44	31	37·3	13	8	1·33
London	53	26	43	34	38·4	9	5	0·99
Paris	55	15	41	29	34·9	12	8	1·12
Berlin	48	10	35	26	30·4	9	13	1·58
Nice	61	28	52	35	43·5	17	3	1·30
Florence	60	26	48	35	41·4	13	3	2·01
Rome	58	32	52	39	45·6	13	8	3·56
Naples	57	34	51	41	45·8	10	10	2·17
Palermo	62	32	56	41	48·6	15	13	2·96
Malta	68	39	56	46	50·8	10	14	3·74
Algiers	70	34	58	45	51·6	13	17	4·89
Biarritz	63	25	49	37	42·8	12	10	3·08
Lisbon	64	36	55	44	49·9	11	5	0·67

* A day on which at least 0·04 in. has fallen.

The above figures represent the temperature and rainfall for last month at certain selected places in this country and abroad. If they are compared with the corresponding figures for January which were published in THE LANCET[1] it will be seen that at all the foreign stations except Berlin, Paris, Palermo, and Algiers there was a rise of temperature, while in this country a fall was experienced. As is invariably the case in winter, the nights at the Scilly Isles were much milder than in any other part of this country and, as can be seen by the mean minimum temperatures, they were also considerably milder than those at Nice, Florence, and Biarritz, and only a little cooler than those at Naples and Palermo. Visitors to Malta and Algiers, however, enjoyed a night temperature as mild as, or milder than, that of the afternoons at nearly every place in this country, and visitors to Lisbon experienced the same temperature at night as that prevailing during the day-time at Bath, Nottingham, and Jersey. The days at Nice and Florence were several degrees warmer than they were at Bournemouth, Sandown, and Torquay but after sunset the English resorts retained their warmth to a much greater extent, so that the nights were no cooler than those of their southern rivals. The average diurnal range of temperature was in nearly every instance less at our own southern and south-western resorts than abroad, but the range of only ten degrees at Naples and Malta was no larger than that at Sandown and Torquay and a degree less than it was at Bournemouth. At all the foreign resorts except Naples, Malta, Algiers, and Lisbon the sheltered thermometer touched, or fell below, the freezing-point, and the only place in the whole of the United Kingdom that escaped the frost was Scilly. At Nice and Biarritz there were nine frosty nights and at Florence 12. Except at Algiers the month was nowhere very rainy; the driest spots abroad were the Riviera, Northern Italy, and the coast of Portugal, while in this country London was amongst the driest. The sunshine is not recorded at the foreign stations, but in this country, especially along the south and south-west coasts, the month was particularly bright, most places registering an average of about three and a half hours per day. It is, however, probable that most of the Mediterranean resorts enjoyed a longer duration considering that the sun in that latitude was above the horizon for a much longer period.

[1] THE LANCET, Feb. 16th, 1907, p. 445.

MEDICINE AND THE UNIVERSITY OF OXFORD.

As will be seen by particulars given in another column, "the Master and Fellows of the College of the Great Hall of the University, commonly called University College in the University of Oxford," have decided to endow a prize for research in any medical science. It is to be called the Radcliffe Prize in memory of that Dr. John Radcliffe who was so bright an ornament of the society in question and who gave so generously towards the funds thereof. This endowment from University College is one more instance of the desire lately shown by various colleges to do something to facilitate the study of medicine so far as their respective finances will allow. The University itself is poor but many of the colleges which may be called constituents of the University are rich, and such as can afford to do so help in many ways those members of the University who are not members of their own society. Research is perhaps more needed in the science of medicine than in any other, for in no other science are there more problems awaiting solution or problems the solution of which would more powerfully affect human happiness, and it is fitting that University College, which was traditionally founded by King Alfred, should try to increase the sum of human knowledge, for, as Alfred himself said, "Though we think upon many things, we have but little perfect understanding free from doubt."

SILVERED SILK SUTURES.

IN the *Centralblatt für Chirurgie*, 1906, No. 35, Herr Witzel and Herr Wederhake describe the properties and the mode of preparation of silk sutures impregnated with silver. Silver wire is smooth, unabsorbable, non-absorbent, and easily sterilised, but its stiffness is disadvantageous. Silk impregnated with silver and afterwards treated with an antiseptic and made waterproof with caoutchouc is cheaply and easily prepared; it is one-third stronger than ordinary silk, it is flexible, antiseptic, easily sterilised, and non-absorbent. It is said, in a word, to combine the advantages of silk and silver wire without possessing their disadvantages. The silk is silvered in the following way. The silk is wound

on glass plates and soaked successively for 12 hours in ether, to remove fat, for 12 hours in absolute alcohol, and then for 20 minutes in a 10 per cent. solution of hydrogen peroxide. The silk is then transferred to the silver solution, which is prepared by precipitating a 1 per cent. solution of silver nitrate by the addition of sodium hydroxide and dissolving the washed precipitate with a minimum of ammonia solution. Next the suture is dried in an oven at 100° C., soaked in chloroform for two hours, and then in a 16 per cent. solution of caoutchouc for 12 hours. It is washed quickly in chloroform and dried, and finally the silvered silk is boiled for ten minutes in a 1 per cent. solution of mercuric chloride, and kept permanently in this solution. The suture requires to remain about one hour in the silver solution in order to become perfectly black, showing no white spots in transverse section.

THE LATE DR. ORONHYATEKHA.

LIKE Hiawatha, the legendary saviour of his people, Dr. Oronhyatekha, whose death was recently reported at Georgia, prayed—

> "Not for greater skill in hunting,
> Not for greater craft in fishing,
> Not for triumph in the battle,
> Nor renown among the warriors,
> But for profit of the people."

and in his nature formed a remarkable contrast to the general proclivities of the picturesque race to which he belonged. He was of the Mohawk tribe of the Six Nations and was born in 1841 on the tribal reserve near Brantford, Ontario. After receiving some elementary education under great difficulties he became a schoolmaster in his native reserve and subsequently entered Toronto University, where his intelligence and complete grasp of civilised life attracted the attention of his teachers. When the King, then Prince of Wales, visited Canada in 1860 Oronhyatekha was chosen by the chiefs of the Six Nations to present an address to his Royal Highness who, charmed with the intelligence and manner of the young Indian, offered to pay the expense of his further education at Oxford. The offer being accepted, the first, and probably the only, Red Indian Oxonian was placed under the care of Dr. Henry Acland, Regius Professor of Medicine, and on his return to Canada he entered the medical profession there and was well known as an excellent organiser. He was the first secretary of the Hastings County Medical Association and for the last 26 years of his life was Chief Supreme Ranger of the Independent Order of Foresters, a society in which he took a keen and active interest. Dr. Oronhyatekha married in 1863 a woman of his own blood, a great-grand-daughter of the chief Thayendanagea who in his day was famous for his enlightened outlook upon life, his humanitarian qualities, and his loyalty of purpose. Dr. Oronhyatekha was a Freemason, an Orangeman, and a Good Templar. The son of the deceased Indian chief, William Acland Heywood Oronhyatekha, is an M.D. of Toronto University.

AN IMPROVED METHOD OF DETERMINING MORPHINE.

AN ingenious method of determining small or large quantities of morphine has been suggested by Mr. Thomas Tickle, F.I.C., in the *Pharmaceutical Journal* of Feb. 16th. It presents many points of originality and promises to be of value in toxicological examinations for morphine. The essential point in the process consists in the employment of metacresol in addition to amyl alcohol as a solvent of the alkaloid. Metacresol is a far better solvent of morphine than is amyl alcohol, but it is partly soluble in water, a difficulty which is surmounted by employing a mixture of these solvents in the proportion of 2 to 1. The outline of the process, full particulars of which will be found in the original paper, is as follows: The alkaloid is liberated with sodium bicarbonate and agitated with a mixture of metacresol and amyl alcohol, and after observing certain precautions the alkaloid is extracted from the mixed solvents by agitation with acetic acid. The solution of morphine acetate obtained in this manner is placed in contact with the vapour of ammonia, whereby the alkaloid is deposited in a crystalline form. The crystals of morphine are then dried and weighed. This process is serviceable for dilute solutions of morphine and is especially useful in toxicological examinations, as the metacresol fixes and eliminates the albuminoid extractive material which often occasions considerable difficulty when working with the methods hitherto employed. The paper contains full experimental proof of the excellence of the method, showing its undoubted superiority over methods based on the use of amyl alcohol alone as a solvent which have hitherto given the best results.

THE MILK QUESTION IN NEW YORK.

THE *New York Medical Record* of Feb. 23rd states that the board of aldermen of that city has taken up the milk question and an ordinance has been proposed providing that all milk sold at retail shall be either sterilised or pasteurised, unless the milk has been bottled in dairies under the supervision of inspectors of the health department and each bottle bears the health department's seal placed on it by one of the department's inspectors. The milk question is arousing the attention of health authorities in many parts of the United States. In Illinois the State pure food authorities have found that only from 30 to 35 per cent. of the milk sold in the various towns of Illinois which they visited was in a satisfactory condition owing to defective sanitary arrangements in collecting and handling it. The lay papers of New York have been urging for some time that all milk furnished to the city should be pasteurised. The medical journals for the most part uphold the New York Health Commissioner in his contention that municipal pasteurisation is not nearly so effective a system for insuring an unpolluted milk-supply as is inspection of the sources of supply. The *New York Medical Record*, in a previous reference to the question in its issue of Feb. 16th, a leading article, points out that inspection alone would be insufficient owing to the fact that the New York milk-supply is drawn from some 30,000 farms scattered through several States, and that to inspect the milk at these farms properly a larger force of inspectors would be needed than the city would care to pay for. Inspection to be of real value must be fairly frequent and thorough. Therefore it is claimed that both inspection and pasteurisation should be employed. It is a healthy sign, at any rate, that in Great Britain and in the United States interest is being gradually excited in the quality of the milk-supply.

NATURAL INCREASE IN THE ENGLISH POPULATION.

THE persistent decline during the last 30 years, both in the birth-rate and death-rate in England and Wales, and the consequent result on the natural increase of the population, are dealt with in an interesting table in the recently issued annual report of the Registrar-General relating to the year 1905. The annual birth-rate, which was equal to 35·4 per 1000 in the five years 1876–80, showed a marked decline in each of the five succeeding quinquennial periods and had fallen to 28·1 in 1901–05. The effect on the population of this decline in the birth-rate was to a considerable extent counterbalanced by the persistent decline in the annual death-rate which steadily fell during the six five-year periods under notice, from 20·8 per 1000 in 1876–80, to 16·0 in 1901–05.

The average annual rate of natural increase of population, by excess of births over deaths, which was equal to 14·6 per 1000 in 1876–80, showed, however, a steady decline in the four following five-year periods to 11·6 in 1896–1900; but it recovered to 12·1 per 1000 in 1901–05, during which period the decline in the death-rate was proportionately greater than the decline in the birth-rate. The actual increase of the English population is, of course, influenced by the balance between immigration and emigration as well as by the balance between births and deaths; but the effect of this factor was so slight during the ten years 1891–1901 that the difference between the number of the population enumerated in 1901 and the estimate based solely on the excess of births over deaths in the ten years was only equal to 2·3 per 1000. Failing complete record of immigration and emigration, the estimate of the English population in the middle of 1905, adopted by the Registrar-General in his last annual report, is based on the assumption that the rate of increase that prevailed in the last intercensal period has since been maintained. The result of this estimate assumes that the loss to the English population between the date of the last census and the middle of 1905 by excess of emigration over immigration was 105,442, or nearly 25,000 per annum.

HAIR-BRUSHING BY MACHINERY.

THE machine brush, especially if it be driven by electrical means, is one of the proud acquisitions of the modern barber. It is commonly looked upon as a sign that the business of the hairdresser is conducted upon principles abreast of the times. A machine brush electrically propelled, together with some attempt at an aseptic or antiseptic practice in connexion with hair-cutting, shaving, and shampooing, serves to bring the proprietor of such an establishment into some sort of scientific reputation from the point of view of his patrons. Cleanliness is almost as great a *sine quâ non* in the conduct of the affairs of a barber's shop as in that of the operating theatre, and therefore the man most deserves success who most endeavours to secure as far as possible the scientific cleanliness of his person and of the instruments used in his business. There is not wanting evidence that the barber's shop has been the means of spreading disease and it is not difficult to suggest the conditions under which such a distribution of pathogenic materials may take place. The sterilisation of razors, combs, brushes, and the hands of the operator may, however, avail much but it is conceivable that the good which this may do may be undone by the revolving brush scattering dust, scurf and so forth from the dry scalp. Thus all the care taken to insure antiseptic conditions may be negatived by the whirlwind of particulate matters raised by the machine brush. It should be remembered that the function of the machine brush is not to dress or to arrange the hair but merely to drive out dust and hair-cuttings. The hand brush, of course, plays quite another part; it is used to adjust the hair and very frequently during this process the hair is wetted or oil is applied to it. It is a pity that the machine brush presents this objectionable feature, for apart from its usefulness as a remover of dust and hair clippings it undoubtedly exercises a healthy stimulus to the scalp and may even promote, when reasonably used, the nutrition of the hair. For these reasons the apparatus finds a wide circle of patrons. To preach its abolition may be justifiable on strictly hygienic grounds, but that would mean the banishment of a really useful, if not indispensable, instrument connected with the dressing and treatment of the hair. Its application would be rendered futile by moistening the hair and so the suggestion remains that the objection might be met, perhaps, by conducting the machine-brushing operation in such a manner that dust, hairs, and scurf would be directed, for the most part, up an exhaust ventilating shaft situated immediately opposite the head of the person who is under operation. Such a measure, too, would secure a supply of fresh air in general in the room.

EPIDEMIC CEREBRO-SPINAL FEVER.

DURING the last six or seven days epidemic cerebro-spinal fever has made its appearance in several fresh localities. In London on March 7th an inquest was held on a girl, aged five months, who had died at Kensal Rise. The medical evidence was to the effect that death was due to cerebro-spinal meningitis and the jury returned a verdict accordingly. The medical officer of health of Poplar reported on March 7th that a fatal case had occurred on the Isle of Dogs. Cases are also said to have occurred at Wealdstone, near Harrow, Middlesex, at Langley Green, near Oldbury, Worcestershire, at the village of Elson in Shropshire, and at Warrington. An alleged case in St. Helens, near Liverpool, was at the necropsy found to be tuberculous meningitis. Two fatal cases are reported from Liverpool. In Glasgow the daily announcement of the cases notified and the deaths has been discontinued since March 4th and in future only a weekly official report will be issued on Fridays. The report for March 8th stated that only 101 cases were under observation. There had then been notified in Glasgow a total of 340 cases with 174 deaths. Since the beginning of March there have been eight or nine deaths from the disease in Leith. In Greenock three patients have recovered and three remain in the hospital. In Paisley there have been 13 cases with nine deaths, and in Govan a total of 26 cases with 14 deaths. In Dundee there have been several cases, some of which are described on p. 739 of our present issue, and there has been a case in Dunfermline. In Belfast nine fresh cases and one death were announced on March 12th. There had then been in that city a total of 177 cases and 96 deaths. In Dublin there has been a total of nine deaths but no fresh case has been notified since March 5th.

THE THERAPEUTIC VALUE OF CACTUS GRANDIFLORUS.

THE therapeutic value of *Cactus grandiflorus*, the night-blooming cereus, in functional disorders of the heart has been considered by some physicians to be such as to warrant the inclusion of the drug in the current edition of the United States Pharmacopœia. The subcommittee on pharmacognosy investigated the question and its results have been published by Professor L. E. Sayre in a recent number of the *Therapeutic Gazette* (1906, No. 12, pp. 812–16). It was found difficult to obtain a supply of trustworthy material, as the greenhouse varieties were not considered to be of value and the plants growing wild in tropical countries occur in many species and varieties. Alcoholic tinctures were made from the fresh stems of authentic material and examined physiologically, with the result that the action of the drug on the heart was found to be slight and uncertain, if not practically *nil*, as shown by tracings taken from the right ventricle and carotid artery of dogs anæsthetised by chloretone and morphine. The subcommittee came to the conclusion that the drug should not be made official, as it is difficult to obtain and to identify; moreover, it rapidly deteriorates, owing to the presence of an enormous quantity of water, 95 per cent., in the fresh stem, together with mucilage and other easily decomposed bodies. No alkaloid or other definite principle has yet been discovered in the drug; indeed, if one be present there is reason to suppose that its percentage yield would be remarkably low, amounting to no more than 0·00076 in the tincture. For the present, therefore,

the therapeutic value of *Cactus grandiflorus* is open to considerable doubt, in spite of many favourable opinions expressed by clinicians.

THE Department of Public Health of Queensland in a bulletin dated Jan. 26th states that 6 more cases of plague had occurred and been notified. Of these (the numbering follows the cases reported in the bulletin of Jan. 19th) Case 10, a boy, aged 14 years, was removed to hospital on Jan. 20th and died on the 25th. Case 11, a woman, aged 75 years, was the grandmother of Case 10 and had been nursing him. She was attacked on Jan. 19th and died on the 21st, being too ill to be moved to hospital. Case 12, a boy, aged eight years, was attacked on Jan. 19th, and the case was only reported after death. Cases 13 and 14 respectively, a boy aged eight years and a girl aged nine years, came, as did all the other cases, from the New Farm infected area and had been in constant association with the other cases reported. The boy was attacked on Jan. 19th and the girl on Jan. 23rd. Case 15, a male, aged 40 years, was the father of Cases 6 and 7. He was attacked on Jan. 22nd. A plan is attached to the bulletin showed that the outbreak is a typical example of local infection. All the cases are associated with the general and produce stores known as Garnett's, in James-street, New Farm. Dead rats were found in and near these stores previously to the outbreak and all the boys had been playing recently in the stores. With regard to Cases 8 and 9 (the suspect cases) they are convalescent. Bacteriological investigation was negative in both. With regard to Port Douglas, 31 cases have been reported and 1 has proved fatal. They all come from a sugar mill eight miles outside the town.

AN ordinary meeting of the Royal Meteorological Society will be held at the Institution of Civil Engineers, Great George-street, Westminster, S.W., on Wednesday, March 20th, at 7.30 P.M., when a lecture will be delivered on the Exploration of the Air, by Major B. F. S. Baden-Powell. The lecture will be illustrated by models and lantern-slides. The annual dinner will be held at the Trocadéro Restaurant, Piccadilly-circus, W., on Tuesday, June 18th, at 7 P.M.

A MEETING will be held at the Mansion House on Wednesday, March 20th, at 3 P.M., with the permission of the Lord Mayor, to promote the interests of the Second International Congress on School Hygiene to be held in London in August next. The following are announced as speakers: Sir Lauder Brunton, Sir John Cockburn, Dr. T. J. Macnamara, M.P., Sir Richard Martin, and Sir Edward Brabrook.

Dr. L. E. Hill and Dr. H. A. Caley have been nominated as candidates for the two vacancies upon the Senate of the University of London. The election will resolve itself into a contest between those who do and those who do not believe in the necessity for the erection and foundation of an Institute of Medical Sciences in connexion with the University of London.

THE death is announced, on March 10th, at Bournemouth, of Dr. A. E. Sansom, consulting physician to the London Hospital. Dr. Sansom had written much upon diseases of the heart. We hope to give details of his career in a future issue.

A PAPER by Mr. Noel A. Humphreys, I.S.O., entitled "The Alleged Increase of Insanity," will be read before the Royal Statistical Society at 9, Adelphi Terrace, Strand, London, W.C., on Tuesday, March 19th, at 5 P.M.

THE RÔLE OF THE BLOOD PLASMA IN DISEASE.

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IV.[1]

INFLUENCE OF THE PLASMIC ENVIRONMENT ON THE DEVELOPMENT OF THE ORGANISM.

THE fact that the evolution of the individual cell is so greatly under the control of its environment prepares us for the conclusion that the development of the organism as a whole is in great measure determined by the environmental influences operating on its constituent cells and by no means solely by a developmental impulse inherent in these cells. How far this is true of embryonic development cannot here be discussed, but that it is true of post-partum life there can be no shadow of doubt. It is safe to predict that were the individual cell environments to remain, during the entire post-partum life, the same as on the last day of intra-uterine life—were the plasmic environment to remain the same, the nervous system never to be stimulated by external agencies, nor the muscle and gland cells energised through their nerves—supposing life were possible under such conditions, it is, I say, safe to predict that little or no development would take place. Growth there would doubtless be, but it would be growth without development—a mere magnification of the infantile type; some glimmering of mind there might evolve, but the mental personality would be built up of visceral sensations alone, rising to no higher level than that of the proverbial oyster.

The structural changes which characterise the various stages in the vital cycle—infancy, childhood, puberty, adolescence, maturity, and old age—are all in large measure determined by the plasma, as also are the changes which take place in the pregnant woman. The composition of the plasma varies with each of these vital stages. As each is reached a particular spring is as it were touched, and the plasma changed in such wise as to induce the structural changes characteristic of the stage attained; during the developmental period the tissues are urged by specific plasmic stimuli to develop along definite lines, in the absence of which stimuli they tend to remain *in statu quo;* while in the final stage they suffer senile decay not so much because they wear out as because decay is deliberately thrust upon them by specific plasmic influences, which thus check that tendency to corporeal immortality which is innate in all living things, and set a definite term to the length of life: the organism commits, in fact, slow suicide through the plasma.[2] That the various stages of post-partum development are brought about by specific plasmic stimuli is proved by the fact that development may cease at any one of them, if the needed hormonic stimulus be wanting, and by the further fact that in some cases, at all events, it may be made to proceed normally by supplying the plasma with the ingredient which it lacks. Thus in certain cases of infantilism the administration of pancreatic extract is known to have this remarkable influence, and there can be little doubt that the pancreatic hormone which produces this effect is only one among many similar hormones operating during early life. Absence of the thyroid implies, as we know, impeded development, which can to some extent be advanced by the administration of thyroid extract, and the fact that the thymus gland atrophies soon after birth strongly suggests that it also plays a necessary part in development, especially during its earlier phases. Its persistence in cases of Graves's disease is of interest in this connexion.

The influence of the plasma on development is also shown by the phenomena of puberty. It is now known that the secondary sexual characters, both mental and physical, are induced by the presence in the blood of specific hormones derived from the ovaries and testes. Possibly these or kindred hormones begin to be formed in small quantities quite early in life and are responsible for such secondary sexual characters as are observed before puberty, for the boy

[1] Articles I., II., and III. were published in THE LANCET of Feb. 2nd (p. 313), 9th (p. 375), and 23rd (p. 535), 1907, respectively.

[2] I have elsewhere given my reasons for concluding that senility is essentially a process of slow suicide, committed through the medium of the plasma. See THE LANCET of August 5th, 1905, p. 403

and the girl show mental and physical differences from quite an early age. When, however, puberty is reached the ovaries and testes are stirred—how we know not, but possibly through the instrumentality of the adrenal glands, the cortical portions of which have been found to be hypertrophied in cases of premature puberty—into increased activity, and begin to pour their hormones plenteously into the blood. As a result of this the entire organism is stirred to its depths; the metabolism of its every cell is altered, development is pushed forward along specific lines, the bodily conformation changes, new feelings arise, and the individual looks out upon the world with altogether other eyes. And all this at the prompting of a subtle essence yielded by two small glands. Surely no magic spell of fable ever wrought change more wonderful.

This mechanism generally becomes effective at about the fourteenth year, but sometimes it comes into premature operation, as early, it may be, as the second year, as in a patient of my own; sometimes, on the other hand, its action may be delayed for a few years, or even remain in permanent abeyance.

Among the hormones which determine growth and development must be reckoned those which are formed in connexion with menstruation and pregnancy. Menstruation, as Marshall and Jolly have shown, is excited by an ovarian hormone; and these observers have also demonstrated that the uterine changes which bring about the fixation of the impregnated ovum are likewise induced by an ovarian hormone, apparently derived from the corpus luteum, which, as is well known, undergoes considerable enlargement during the first three months of pregnancy. The remarkable transformation which the pregnant woman undergoes is due, wholly or in part, to the absorption of fœtal hormones. Among the changes thus brought about is the active mammary development, as the striking experiments of Starling and Lane-Clayton have so admirably demonstrated. The metabolic changes induced by the alteration which the plasma of the menstruating and pregnant woman undergoes, interesting and important though they be, are too numerous to be entered into here. I will merely refer to the influence of pregnancy in removing anæmia and improving nutrition. I have seen a slender anæmic girl increase so rapidly in weight during the first three months of pregnancy that her friends have failed to recognise her in the street.

In order that we may fully appreciate the influence of the plasma on development it is necessary to take due account of the fact, already insisted on, that every new form of functional activity is attended by structural change, and when we consider the many successive changes which the plasma undergoes during the years of development, and the numerous new forms of activity which are in this way called forth, we are better able to realise how it is that the plasma comes to influence development so profoundly. Nor does the influence of the plasma in determining the normal vital cycle end with the attainment of maturity: it continues throughout life; and just as the changes which this fluid undergoes before maturity determine in large measure the developmental changes which lead up to that epoch, so do the plasmic changes which take place during maturity and senescence largely determine the structural changes which then occur. Even during the stage of maturity the individual does not remain stationary; each day he grows structurally older; each day he makes some advance towards senility. With the exception of the highest nerve centres which may continue to evolve some time after the tissues in general have matured, these changes are for the most part in the direction of degeneration, and such degenerative changes are due, not so much to a wearing out of the cells of the body, or to an innate tendency to degeneration at a certain period of their career, as to specific agencies operating on them through the plasma. These agencies probably begin their work of destruction soon after maturity is reached, remaining, however, in partial abeyance until the age of 60, or thereabouts, when they may come into more active operation; and just as puberty may begin prematurely or postmaturely, according to the time at which the plasma becomes pubescent, so may senile degeneration occur earlier or later, according to the time at which it grows senescent. On the one hand senility may begin in childhood, with the characteristic phenomena of blanching of the hair, wrinkling of the skin, and hardening of the arteries; and, on the other hand, it may be delayed, even as late as the ninth decade, as in the case of one of my patients who in many respects is as young as the average man of 50. In those who live to a great age senility generally comes on late and advances slowly. When it begins early it is apt to appear suddenly and to advance rapidly.

We do not yet know what constitute the special characteristics of senile plasma. It is probable that most of the plasmic constituents undergo some alteration with advancing years, but there are good grounds for concluding that the most characteristic changes, and those having the greatest influence in producing senile degeneration, pertain to the hormones. What causes these hormonic changes has yet to be discovered; it seems not improbable that they result in large measure from atrophy of certain hormone-yielding tissues, such as the thyroid. Such an assumption must not be taken to imply, as some might argue, that senility is, after all, due in the last resort to a primary atrophy, or decay, of some part of the organism; it is not necessary that the assumed atrophy should be a primary one; it might occur secondarily to some specific environmental influence. The atrophy of the thymus gland at an early period of life is assuredly not due to senile decay of its component cells; it is comparable to the atrophy and disappearance of other fœtal structures and is evidently due to some such process as vascular shrinkage, or the presence in the blood of a substance destructive to the cells of the gland—at any rate, to an environmental influence of some kind; and it would be possible for the atrophy of the thyroid gland, which we have assumed to be one of the causes of senile degeneration, to be induced in a similar way. In short, the process which starts senile degeneration need not of itself be of a primary, spontaneous, degenerative kind. It is, indeed, possible for heightened functional activity in one tissue to set up degenerative changes in others; thus it has been shown that atheroma may be induced in rabbits by injecting them with adrenalin, and it is conceivable that that heightened activity of the adrenal glands may be one of the causes of atheroma—that such heightened activity may constitute, in fact, one of the mechanisms by which senility is induced. Be this as it may, the phenomenon of experimental atheroma clearly shows that senile degeneration may be initiated in other ways than by a wearing out, or spontaneous decay.

I have said that the changes which in due course take place in the hormonic constituents of the plasma may be partly responsible for senile decay, but it must not be thought that the plasmic changes which senile blood undergoes and which induce the degenerations characteristic of senility are simple in nature. Like the kindred changes which occur during, and which are largely responsible for, development, they are of a highly complex kind. We must remember that any alteration in plasmic composition leads to modified metabolism, that this modified metabolism itself reacts on the composition of the plasma, that this plasmic alteration again causes a further modification of metabolism, and so on indefinitely. In this way *the plasma is prevented from remaining stationary in composition, and is made to undergo a series of changes which are continually bringing new forms of activity into operation, with their attendant structural changes*; those structural changes which accompany the new activities excited by the successive plasmic changes occurring during developmental life being evolutionary, and those which attend the activities excited by the successive changes which senile blood undergoes dissolutionary.

THE PART PLAYED BY THE PLASMA IN DETERMINING THE ANATOMICAL CHARACTERISTICS OF RACE.

I have already pointed out that the composition of the plasma is peculiar for each race, and since plasma influences structure we are now confronted with the question whether the anatomical characteristics of race may not in some measure be due to racial differences in plasmic composition. That many undiscoverable differences are thus induced is certain, as also others more obvious—e.g., the tendency to leanness or obesity, but the question arises whether some of the more obtrusive anatomical features of race may not have a similar origin. Many considerations suggest that they may. Consider, for example, the effect of disease in rendering individuals alike. We may place two men suffering from the same disease side by side, and though they may never have seen each other before they might be taken for brothers. This likeness between individuals suffering from the same disease may be observed almost every day in the case of such diseases as granular kidney, myxœdema, paralysis agitans, and acromegaly, in each of which the individual is moulded

—and perhaps even tinted—in a peculiar way by a peculiar condition of plasma. Acromegaly is especially interesting in this connexion on account of the remarkable anatomical changes which take place in it. Possibly the condition of the plasma inducing them is connected with the hormonic function of the pituitary body, but whether or not such is the case, it is certain that the changes in question are induced through the plasma, for there is no other medium through which they can be brought about. I have in another place[3] attempted to show that most of the anatomical features of this disease are to be observed in the anthropoid apes, and that the acromegalous man resembles the latter in the following particulars:—"The possession of cranial crests, huge supra-orbital ridges, prominent molars, long nasal bones, massive prognathic jaws, and greatly developed cranial sinuses; in the prominence of the eyes, wrinkling of the lids, furrowing of the forehead, breadth and fleshiness of the nose, thickness of the lips, shape of the ears; in the shortness and thickness of the neck; in the forward bend of the spine and consequent stoop; in the straightness of the sacrum and coccyx and length of the cervico-dorsal spinal processes; in the shape of the thorax, sternum, and pelvis; in the formation of the hands and feet, especially as regards the existence of pads, separated by deep furrows, on the palms and soles, and in the longitudinal striation of the nails; in the bowing of the legs, the massiveness of the skeleton generally, and the great development of the muscular system, especially of certain muscles—to wit, the trapezius and tensor vaginæ femoris; in the coarseness and looseness of the skin, the excessive growth of hairs, and the tendency to pigmentation; in the scanty adipose deposit in the mammæ, and the great size of the clitoris; in the depth of the voice, the abdominal character of the breathing, the great susceptibility to cold, the excessive activity of the cutaneous glands, and the keenness of the sense of smell."[4]

INFLUENCE OF THE PLASMIC ENVIRONMENT IN CAUSING DISSOLUTION.

We have next to consider the influence of the plasmic environment in causing structural dissolution other than that due to spontaneous senile degeneration of the cell. In so doing I shall again refer to the individual cells rather than to the tissues which they form, but it is obvious that when several of the cells constituting a tissue degenerate we have to do with tissue as well as cell degeneration. It is necessary to observe here that the degenerations cover a much wider field than those discoverable by the microscope. It is only when the dissolution has advanced to a certain depth, as when, for example, the dendrites of a neuron or the transverse striæ of a muscle fibre have disappeared, that its existence can be demonstrated by the microscope, but it must not be forgotten that such *obvious dissolution is always preceded by undiscoverable dissolution, of which there are many stages, at any one of which the degenerative process may stop, and the existence of which has to be sought for in the functional sphere.* All organic diseases are, in fact, preceded by a phase—shorter or longer in duration—which may be described as "functional" in the sense that the cell dissolution underlying it cannot be microscopically demonstrated. This may be observed in the early stages of such diseases as tabes dorsalis and progressive muscular atrophy. Sometimes, indeed, a disease proceeds to a fatal termination without any lesion being discoverable post mortem to account for it, as may happen in myasthenia gravis; just as, contrariwise, marked structural degenerations, for example, in the brain, may often be observed post mortem without having given evidence of their presence during life.

In tracing the vital cycle of an individual cell, as exemplified by the neuron, we saw reason to believe that it rarely degenerates spontaneously—i.e., independently of specific environmental influence, and that even senile degeneration and such disorders as the family palsies, in which the case for spontaneous degeneration is *primâ facie* so strong, may be largely extrinsic in origin. Certain cells of the body normally degenerate and die after a given term of existence, their place being taken by other similar cells. Such is the case with the chromocytes and some gland cells, and also, according to Pavy, with the lymphocytes which he believes to play an important part in the conveyance of proteid and carbohydrate from the intestines to the tissues.[5] How far such degeneration occurs spontaneously, and how far as the result of extrinsic causes, is not easy to determine, though what has recently come to light regarding pathological hæmatolysins makes one wonder whether the normal decay of chromocytes may not be due to the action of physiological hæmatolysins—i.e., to the operation of an extrinsic agency. Excluding, however, such possible instances of spontaneous dissolution and those of genuine senile degeneration (in which some degree of inherent causation may be admitted), we may say that *degeneration never occurs spontaneously in a normally evolved cell.* I say in a "normally evolved" cell. One which has not evolved normally—the evolution of which, that is, has either stopped short of the normal goal or proceeded on abnormal lines—is doubtless predisposed to degeneration and may conceivably degenerate spontaneously—i.e., even though it be subjected to normal environmental influences. But it has to be remembered that defective cell evolution is itself often due to environmental fault, and if a cell the normal evolution of which has been thus prevented should subsequently degenerate, even though normally environed, we should not be justified in altogether exonerating the environment from a share in the causation of that degeneration. Whenever, therefore, we meet with cell degeneration we must—with the reservation given—conclude either that its environment is faulty or that it has not undergone normal evolution. Now often our only means of ascertaining during life whether a cell or system of cells has or has not evolved normally is by reference to functional activity; we must, namely, regard functional efficiency as the chief indication of structural efficiency. If, therefore, a system of cells—e.g., neurons in the case of Friedreich's disease or muscle cells in the case of amyotrophies—has for years carried on its functions aright, one may legitimately doubt whether the cells are structurally defective or, at least, whether they are themselves wholly responsible for the premature degeneration which they undergo.

In this connexion I may refer to the observations of Sir William Gowers on what he terms abiotrophy, i.e., a primary cell-atrophy due to an inherent weakness of zygotic origin. Among the instances he adduces are: (*a*) the baldness which so frequently comes on in men after adult life, a form of atrophy he attributes to a primary "failure of vitality in the follicles"; (*b*) the idiopathic muscular atrophies, in which he assumes "a defect of vital endurance"; (*c*) a rare form of atrophy of the spinal motor neurons, which commences about the end of the first year of life; (*d*) those family palsies which result from degeneration in the pyramidal tracts; (*e*) those other family palsies in which the posterior and lateral columns degenerate (Friedreich's disease); (*f*) cases of optic atrophy in which several members of the same family go blind; and (*g*) cases of progressive muscular atrophy and bulbar paralysis which "often come on without apparent cause simply because the term of life for these structures is reached sooner than for the vital organs."[6]

Now I admit that these cases are among the most likely instances of genuine spontaneous cell atrophy, but I am not satisfied that even they are wholly spontaneous and to be explained by assuming an inherent lack of cell vitality. The atrophy of the hair follicles which causes ordinary crown baldness in men is surely secondary—the result, i.e., of defect in the local plasmic supply, due to strangulation of the scalp vessels by pressure of the hard-rimmed hat against the resisting skull; and as regards the neural atrophies Sir William Gowers himself admits some degree of plasmic causation in certain of them—e.g., the optic atrophy which may be initiated by tobacco poisoning. The more one reflects upon the potency of the plasma to pick out, and initiate degeneration in, definite groups of cells, the less need does there appear to assume the existence of primary cell degeneration.

The environmental influences capable of causing degeneration may, like those involved in evolution, be classed under two heads—the plasmic and the non-plasmic. Regarding the latter it will suffice to recall the

[3] The Scalpel, 1896.

[4] Do not these resemblances suggest that in acromegaly the blood takes on some characters belonging to that of man's anthropoid ancestors? Be this as it may, we have in it a disease in which not only the soft parts but the very bones are profoundly altered, and there can be no doubt that acromegaloid changes may occur within physiological limits. One not infrequently sees perfectly normal individuals with massive features, prominent supra-orbital ridges, heavy mandible, large hands and feet, deep voice, and other acromegaloid characters.

[5] On Carbohydrate Metabolism, 1906.

[6] Lectures on Diseases of the Nervous System, second series, 1904, p. 96 et seq.

fact, already insisted on, that most of the cells in the body—all the neurons and muscle cells and probably many of the gland cells also—need for their normal vitality the continual influx of nerve impulses, any interference with which tends to cause them to degenerate. With regard to the plasmic influences the conditions of the plasma capable of setting up degeneration pertain (1) to defective composition; and (2) to defective circulation.

1. *Degeneration from defective composition of the plasma.*—The varieties of morbid plasma which may cause degeneration are innumerable, and when we reflect that each variety affects the tissues in a way peculiar to itself, that every form of disturbed activity thus resulting is, according to the principle already laid down, attended by a structural change, and that such structural change must necessarily be of a degenerative kind, it follows that the degenerations are not, as we are wont to think, limited to the few forms, such as the fatty and the amyloid, which are easily identifiable, but that they must be well-nigh as numerous as the varieties of morbid plasma causing them.

It is not possible in this place to do more than touch very briefly on the subject of plasmically induced degenerations. Regarding those arising from defects in the nutrient ingredients of the plasma we know little. Starvation, leading as it does to impoverishment of the plasma, produces atrophy which may proceed to fatty degeneration; excess of sugar in the blood (or some morbid state of the plasma attendant upon that excess) may cause degeneration, as shown, e.g., by the frequent occurrence of cataract in diabetes; deficiency of hæmoglobin predisposes to fatty degeneration; and other kinds of degeneration, including sclerosis of the spinal cord, are also met with in the graver forms of anæmia, though how far they are due to the anæmia and how far to the associated toxæmia we cannot at present say.

That defects relating to the hormonic constituents of the plasma may cause degeneration is shown by the tissue changes met with in such diseases as myxœdema and acromegaly, and by the occurrence of atheroma in animals as the result of injecting adrenalin. As yet, however, we know but little regarding the nature of the degenerations arising from this cause. But by far the most important among the innumerable defects of the plasma capable of setting up degeneration are those pertaining to its excretory constituents—i.e., substances which, be they normal or abnormal constituents of the blood, demand elimination. Some of these excreta may—at all events when kept within proper limits—be innocuous; when, however, any of them interfere in the slightest degree with the normal vitality of the cell they must be regarded as poisons and as producing some degree of degeneration. This is true of all the poisonous excreta, whether products of normal metabolism occurring in poisonous quantities, poisons formed as the result of morbid metabolism, poisons (*e.g.*, drugs) introduced from without, or, finally, the endless varieties of bacterial poisons. As instances of degeneration from one or other of these classes of poisons we may cite the peripheral neuritis of diabetes, the fatty degeneration of metallic poisoning, and the Zenker's degeneration of typhoid fever. The truth that in the process of cell degeneration dissolution may proceed to any conceivable depth, down to the absolute destruction of the cell, is well illustrated by the action of these various poisons. Sometimes the dissolution they produce is so slight as to be undiscoverable; at other times it results in gross structural change; sometimes it takes many years for the poison to produce such change; in other cases its action may be so virulent as to destroy the cell within a few days. In this latter case we speak of the poison as a cytolysin or cell dissolver, but one may well question whether there is any essential difference between the action of such a poison and one which takes a long time to produce gross change, between the most virulent cytolysin causing rapid solution of the cell and the blandest poison serving but temporarily to disturb its functions.

The production of cytolysins is one of the many marvels of antibody formation; it is found, for example, that if the renal cells of one kind of animal are injected into another kind of animal the plasma of the latter may acquire the property of destroying the renal cells of the former; and similarly in regard to spermatozoa, hepatic, and other cells. Whence the question arises whether kindred substances may not be formed in, or gain entrance to, the animal body, either as the result of morbid metabolism or microbic agency. There is at present no evidence that the organism is capable of developing cytotoxins as the result of the disintegration and absorption of its own parenchymatous cells.† Be this as it may, it is certain that, whenever a certain type of cell is picked out, to the exclusion of other cells, and rapidly destroyed, it must be from the action of some such substance. It does not seem possible, however, to distinguish sharply between such highly virulent poisons and those causing more gradual destruction. It appears to be more convenient to group all the poisons capable of effecting cell destruction under one head, and to arrange them according to the rate at which they accomplish the destruction. Such a procedure enables us to group together a large number of widely divergent affections, some of which may now be considered.

Acute yellow atrophy of the liver is certainly caused by a chemical substance having a destructive action on the liver cells. But this disease is not the only one in which epithelial cells undergo rapid degeneration; the same thing may happen with other glands—e.g., the pancreas—when we must assume the operation of some substance which has a selective action on the pancreatic cells. In other cases—e.g., granular kidney—the epithelial degeneration is more gradual, and, as already observed, the difference between poisons producing such gradual destruction and the more virulent cytolysins is one of degree only.

The symmetrical degenerations of the nervous system are produced by the action of similar poisons. It is indeed probable that, excluding perhaps the primary senile degenerations and certain of Sir William Gowers's abiotrophies, all the so-called primary degenerations of the nervous system are plasmically induced. Sometimes the poison causes rapid destruction of the neurons, as in infantile paralysis, while in other cases—e.g., tabes dorsalis—years may elapse before the affected neurons are completely destroyed.

Among the degenerative changes which result from poisoned plasma are those which occur secondarily to inflammation, such as gangrene, abscess, and fibrosis. How large a part inflammation occupies in the domain of disease is well shown by a cursory reference to any text-book on medicine, in which a large proportion of the space will be found devoted to a description of inflammatory affections, including, amongst many others, bronchitis, pleurisy, pneumonia, pericarditis, gastritis, enteritis, appendicitis, neuritis, myelitis, encephalitis, and nephritis. Now, poisoned plasma is *par excellence* the cause of inflammation; it may, indeed, for all practical purposes be regarded as the sole cause of it, although there may be other contributory factors at work, such as the lowered vitality resulting from sluggish circulation or disturbed nervous action. Many different kinds of blood poisoning may set up inflammation, but the most common are those due to bacterial agency; indeed, the essential purport of inflammation is the destruction of the bacteria, which by the poisons they engender give rise to it. When inflammation occurs independently of bacterial agency, as in gouty bronchitis or the pleurisy of Bright's disease, may it not be because the tissues falsely attribute, as it were, the poisons to a bacterial source?

2. *Degeneration from defective circulation of the plasma.*—Defective circulation of the plasma may be due to central or to local causes. The former include failure of the central pump, and of pulmonary suction which steadily diminishes with advancing years and is therefore largely responsible for the sluggish circulation of the aged. Among the local causes may be mentioned arterial spasm, as in Raynaud's disease, rigidity, narrowing, and blocking of the vessels, inflammation, and disuse leading to lowered functional activity. A good instance of this latter is afforded by the fatty degeneration which takes place in disused muscles: rhythmic contraction of a muscle greatly accelerates the local circulation of blood and lymph, causing the individual muscle cells to be flushed with plasma; on the other hand, when a muscle is at rest the plasma tends to stagnate, and it is not surprising that in these circumstances the muscle fibres should degenerate, the more so that they lack their wonted nerve stimuli.

When a cell is entirely bereft of its plasmic supply it disintegrates and dies, as in the case of the cells poured out into the alveoli in pneumonia, or those forming the contents of an abscess cavity. When, however, the supply of plasma is not entirely cut off but is merely deficient, the cells may

† See "Collected Studies of Immunity," by Professor Paul Ehrlich. Translated by Dr. Ch. Boldman. New York, 1906, p. 388.

go on living, for a time at least, but the more highly complex of them tend to degenerate, the amount of degeneration among the different types being in direct proportion to their structural complexity; there takes place, in fact, a struggle for existence among the cells, the more lowly, such as those belonging to the connective tissue, surviving at the expense of the more highly endowed, such as the neurons and the gland cells. This truth is well exemplified by the structural changes observed in passive congestion and in the aged. Chronic passive congestion, as from mitral disease, leads to "brown induration" of the heart, lungs, liver (nutmeg), and other organs and tissues. The tissue plasma in this condition not only stagnates but is altered in composition, owing to the fact that the nutrition of the capillary wall suffers from the sluggishness of the capillary circulation, and this interferes with the proper exudation of the lymph. This altered state of the capillary wall, moreover, allows the formed elements of the blood to pass out in undue quantity. The effect of all this is to cause a considerable alteration in the environment of the individual cells of the tissues, in consequence of which the more highly endowed cells degenerate, some of them dying outright, while the connective tissue hypertrophies, in this way causing considerable induration of the part. Much the same kind of thing happens in the tissues of the aged in whom the plasma is both poor in quality and sluggish in movement. Owing to the unfavourable conditions of nutrition resulting the inferior tissue elements thrive at the expense of the superior; muscle, gland, and nerve cells atrophy and decay and are replaced by the hardier connective tissue elements. Hence the tissues lose the softness and succulence of youth.

The time factor in environmental moulding.—In considering the influence of the environment in moulding structure we have to take into consideration the factor of time. Its influence may be thus stated. The longer the moulding agency is in operation the more likely is the resulting structural change to endure—the less likely, i.e., is the cell to revert to the *status quo ante* upon cessation of the moulding influence. This is true both of (*a*) the changes which are undiscoverable by the microscope and manifest themselves in the functional sphere alone; and (*b*) of the grosser discoverable changes.

(*a*) As an instance of undiscoverable modification of cell structure wrought through the environment, that which underlies psychic memory may be cited—e.g., the memory of sounds; the more frequently a tune is heard the better it is remembered, the more enduring, i.e., is the undiscoverable structural change underlying the memory of it. The same truth is exemplified in the case of nervous habits, vicious or otherwise—e.g., the longer a habit spasm persists the more tenacious does it become, the underlying structural basis becoming with every repetition of the habit more and more ingrained. The like is also true of all the functional nervous disorders; thus it is probable that every additional epileptic fit tends to increase the liability to recurrence. And not only nervous but non-nervous habits also tend to get fixed by repetition. When, e.g., through the operation of a specific environmental influence upon it the metabolism of a gland cell has been modified in a certain way, it tends to go on metabolising in the same way after the removal of that influence, and the tendency to do so will be the greater the longer the specific influence has been in operation. It is clear that the basis of this altered metabolic habit is an undiscoverable structural change wrought through the cell environment.

(*b*) As might be expected, structural alterations sufficiently pronounced to be visible are, as a rule, more likely to persist upon withdrawal of the moulding agency than are undiscoverable changes of structure. The longer the nocuous agency has been in operation the more pronounced will the resulting structural change be, and the less the tendency to recovery upon cessation of the nocuous influence. This truth is well exemplified in the case of the structural change induced by inflammation. In the slighter and transient forms complete recovery may ensue, the inflamed tissue reverting to the *status quo ante*, but in protracted inflammation, no matter how slight, some permanent structural change is always left.

Though gross structural change in a cell is apt to be permanent, it is surprising to what an extent it may be recovered from. Thus granular, fatty, amyloid, and Zenker's degeneration may all be recovered from, the tendency to recovery being in inverse proportion to the length of time which the nocuous environment causing it has been in operation. Nerve cells may recover from a considerable degree of gross structural change. Thus a nerve cell in which chromatolysis has occurred (e.g., in strychnine poisoning, botulism, or pellagra) may recover entirely; so also may one which has undergone the profound degenerative changes met with in such an affection as diphtheritic neuritis. This is remarkable in view of the extraordinary permanence of those undiscoverable alterations in neuron structure which underlie memory. Not only may these structural changes be far more indelible than the gross structural changes referred to, but they may actually persist in a cell which has undergone gross structural change. Thus, to take a single example, an individual who has recovered from a severe encephalitis may retain the memory of an object seen but once many years before: the single presentation of the object to his organs of vision has left in the cortical cells an impression which has not been effaced by the gross structural changes wrought in the cortex by encephalitis, an impression, too, which has persisted long after those gross changes have disappeared. In respect of this kind of undiscoverable structure nerve cells, indeed, like sex cells, display an extraordinary tenacity, one which may actually resist the influence of environmental agencies capable of effecting gross structural changes in them.

The time factor, then, applies both to discoverable and undiscoverable mouldings. It is necessary to keep this truth in mind in considering the influence of the individual cell environments on growth, development, and decay. The specific plasmic influences which operate upon the component cells of the organism and play such a large part in determining normal development, as well as senile decay, last for years, and the structural changes which they induce are correspondingly deep and enduring. Morbid influences, too, may likewise extend over a long period and produce lasting structural perversions, and if this happens during the years of development it will produce an evil effect which no amount of after care will efface. A delicate boy, though he may under favourable circumstances "grow up into a strong man," cannot attain to that standard which a healthy childhood would have rendered possible. Long years of delicacy during the epoch of development inevitably leave an evil impress. These considerations emphasise the importance of promptly checking any morbid environmental influence, plasmic or other, that may be present. It is important to do this at all stages of life, but especially during the developmental period. It is not a matter of indifference whether the error be rectified now or some time hence; we should, if possible, correct it at once, so that no vicious impress be left upon the organism. The principle of *principiis obsta* is an important one for the physician.

We are, I think, too apt to overlook the permanent evil which may result from the less malignant forms of morbid cell environment, such, for example, as that induced by indigestion toxæmia. If this condition is pronounced and if it lasts, as it often does, for many years, how can it fail to impress the tissues permanently, notably such impressionable tissues as the nervous? Suppose the toxæmia to be of a kind apt to produce irritability, depression, and muddle-headedness; then on the principle that functional change implies structural change, does it not follow that a long-continued toxæmia of this kind must necessarily impress the cortical neurons structurally, and that too in an injurious way? Apart from such *a priori* considerations, I am convinced from actual observations that intellectual development may in this way be greatly hampered, and that of two individuals with exactly the same mental potentialities and educated in exactly the same way, the one having a sound digestion, and the other being the victim of chronic indigestion toxæmia causing the mental symptoms in question, the former will far outstrip the latter in mental development.

Summary.—The composition of the plasma varies with every phase of life—infancy, childhood, adolescence, maturity, and old age, and in large measure determines the anatomical changes characteristic of these epochs. Probably many of the grosser anatomical characteristics of race have their origin in the plasma. Excluding short-lived cells, like the chromocytes, and genuine senile degeneration, degeneration never occurs spontaneously in a normally evolved cell, but is always traceable to specific environmental influence.

(To be continued.)

THE REGISTRAR-GENERAL'S SIXTY-EIGHTH ANNUAL REPORT.

III.[1]

FURTHER continuing our review of this report we notice that in the course of his final remarks Sir William Dunbar speaks appreciatively of the completion by the Royal College of Physicians of London of the third revision of its Nomenclature of Diseases. This document, the preparation of which has occupied three years, will be welcomed by all who are interested in the progress of scientific medicine and will doubtlessly be serviceable to medical practitioners in their duties under the Registration Acts.

A feature in these reports, which in each successive year since 1901 has attained fuller development, is the collection of vital statistics from our colonies and from the principal foreign countries and their reduction to a common standard for comparison with those of our own country. To these statistics further reference is made when the mortality of particular diseases is dealt with.

Among new departures in the latest revision of the Nomenclature we notice that the great group of general diseases—the *morbi corporis universi* of a previous revision—has been subdivided, the "infections" being distinguished from the "intoxications," and the other general diseases the nature of which is still uncertain being arranged in lists by themselves. At an early stage of its labours the Royal College of Physicians of London appears to have determined this question of classification, for it was adopted in the new official list of causes of death compiled for the Registrar-General's report for 1901 by Dr. Tatham who availed himself of the information at his disposal as a member of a special committee of the College in order to bring the official list of causes of death into harmony with the authorised classification. Now that the new revision of the Nomenclature has been published it is satisfactory to find that no modification is required of the official list of causes of death in use in the English reports since the beginning of the present century and adopted for their reports by the Registrars-General of Scotland and Ireland.

In this country the mean proportion of deaths registered without attestation by medical men appears to be nearly constant from year to year; but in 1905 this proportion in several of the English and Welsh counties was unduly high, reaching in one county as much as 7·6 per cent. of the total deaths. According, we believe, to ancient custom the causes of deaths certified by coroners after inquest are regarded for registration purposes as sufficiently attested, but it would surely be absurd to contend that the coroner's certificate based on after-death appearances alone is in any sense of equal value with that of a medical man actually in attendance on the patient during life. We are therefore of opinion that in all inquest cases where a medical certificate as to cause of death is attainable that document should accompany the certificate of the coroner for the consideration of the Registrar-General.

Among "general diseases" that are exceptionally destructive to life Dr. Tatham has selected for particular comment three—pneumonia, tuberculosis, and cancer. These diseases in the aggregate are responsible for fully one quarter of the mortality from all causes, and the last two of them are now fortunately under investigation by competent authorities, with the view of discovering, in the one case, the exact nature of the morbid processes involved and, in the other case, the best means for controlling its ravages. Taking one year with another, each million of the English population loses annually about 1300 of its number by pneumonia. The disease is everywhere more fatal to males than to females and much more fatal in the towns than in the country. The age incidence of the several types of pneumonia varies considerably; lobar or croupous pneumonia appears to be especially fatal at ages after the forty-fifth year, whereas catarrhal or broncho-pneumonia, whilst also very fatal after mid-life, is enormously more so among young children to whom it is by far the most fatal form of the malady.

To tuberculosis in one or another of its forms nearly 11 per cent. of the total mortality was referred in the year 1905, the death-rate being equal to 1632 per 1,000,000 of the population of both sexes. Of the deaths at all ages, one-fifth part took place at ages below five years, the disease being somewhat more destructive to boys than to girls and much more destructive in the towns than in the country.

Of the 1632 deaths from tuberculosis occurring in each million of the English population, as many as 1140 were caused by pulmonary tuberculosis. Presumably because of the havoc made by this malady amongst the bread-winners of the working classes, it is against pulmonary tuberculosis for the most part that hitherto preventive measures have been directed. Even if sanatoriums were more nearly adequate than at present for the needs of the community, it is as yet too early to form an estimate of their influence in reducing the prevalence of this disease. But there is no doubt that, short of actual hospital isolation of the sufferers, the general preventive measures taken by sanitary authorities have powerfully operated in this direction. At any rate, the returns show that the mortality from the disease in question is steadily and not slowly decreasing as one year succeeds another. As in other recent years the present report shows excessive incidence on the male portion of the community, the mortality in 1905 having been higher in males at all ages than in females by fully 40 per cent. In that year, too, the disease showed the usual excess of fatality in the urban over the rural portions of England.

In recent years inordinate mortality from pulmonary tuberculosis has been recorded in parts of Wales. Thus, in the year under notice it appears that of the 12 registration counties constituting the principality there were seven in which the male death-rate from this disease exceeded the average for England and Wales, and ten in which the female death-rate was in excess. Among these counties the highest death-rates were, among males, 2158 per 1,000,000 in Merionethshire and 2075 in Cardiganshire, and among females, 2141 in Cardiganshire and 1659 in Anglesey. As regards the age of maximum mortality from this disease, it is interesting to note that it occurs much earlier in the country than in the towns. In the urban group of counties pulmonary tuberculosis showed in 1905 the greatest fatality at the age 45–55 in men and at 35–45 in women, whilst in the rural county group the maximum age was 25–35 in both sexes.

In attempting to compare English mortality from pulmonary tuberculosis with that of our colonies or of other countries we are met by the difficulty that in some of these the deaths from this disease are not separated in the returns from those due to other forms of tuberculosis. Taking the figures as they stand in the report it would appear that out of the 24 countries therein mentioned 14 show a higher average mortality than our own, the remaining countries, including our Australian colonies and Italy, showing a rate considerably below that of England and Wales.

From cancer or malignant disease the loss of life in England and Wales still continues to show an increase, the deaths of males in 1905 exceeding the decennial average by 13 per cent. and that of females by 5 per cent. If the deaths from cancer in 1905 be calculated on the aggregate population of the respective sexes without reference to age the disease will be found to have destroyed 756 per 1,000,000 males living in that year, which is the highest rate hitherto recorded, and to have destroyed 1005 females per 1,000,000 living, a rate which is only a trifle below the rate of 1904, which had been the highest on record. The statistics of 1905 confirm those of previous years in showing that cancer is more destructive to women than to men. This difference may, however, be accounted for by the well-known tendency of the disease to invade quite exceptionally the mammary and generative organs of females. In the last five years the male deaths from cancer, less those in which the mammary and generative systems were involved, corresponded to a rate of 712 per million living, whilst the female rate with the same limitations did not exceed 584 per million.

Among ordinary infectious diseases Dr. Tatham selects two for particular notice, diphtheria and enteric fever, both of which diseases were attended by less than the average fatality in the year under notice. The statistics of fatal diphtheria are still vitiated by the practice unfortunately persisting in some parts of using the terms croup and membranous laryngitis as equivalents for diphtheria, although in respect of the latter term this practice has been forbidden by the Royal College of Physicians of London. Taking diphtheria and croup together, the disease would appear to have shown in 1905 the greatest prevalence in South Wales and

[1] Previous notices of this report appeared in THE LANCET of Feb. 16th, p. 450, and March 2nd, p. 606.

in Lincolnshire, Worcestershire and Rutlandshire showing a favourable record in this respect. The mortality from enteric (or typhoid) fever was lower in 1905 than in any other year on record. Compared with the decennial average the mortality of England and Wales from this disease was lower by 31 per cent. The behaviour of enteric fever in 1905 is, however, remarkable in this respect, that whilst, on the one hand, the urban group of counties experienced a considerable descrease as compared with the average, on the other hand the rural group of counties experienced an increase. This abnormal difference may, however, be explained by the circumstance that a severe outburst of enteric fever occurred in Lincolnshire in the early part of the year.

MEDICINE AND THE LAW.

Water Rates for Medical Men.

AT Watford Dr. S. I. Lightfoot was summoned recently for the non-payment of part of the water rate levied upon him by the Watford urban district council. In addition to the rate of 1*s.* in the £ for water for domestic use he had been charged 5*s.* for water used in his garden and 10*s.* for water used in his dispensary. No agreement as to the water supplied for the two latter purposes had been entered into and Dr. Lightfoot had paid the 5*s.* rate but had declined to pay the 10*s.* The Bench decided that in the absence of an agreement to pay the special rate the summons must be dismissed, so that the defendant was successful in resisting the prosecution but was not able to obtain a decision as to whether the water used by him in his dispensary should be covered by the payment made for water supplied for domestic purposes only.

Bill to Abolish the View of the Body at Coroners' Inquests.

Mr. Luke White, who is the coroner for North-East Yorkshire, has just introduced a Bill in Parliament "to dispense with the compulsory viewing of bodies on the holding of coroners' inquests." The Bill is supported among others by Mr. Bramsdon, the coroner for Portsmouth. So far back as 1879 a Coroners Bill was being considered by a Select Committee of the House of Commons which (Clause 5) would have given this relief. Later, in 1898 and 1899, circulars were sent out by the Home Secretary to coroners and their deputies inquiring if the proposed change was in their opinion desirable. In March, 1900, it was elicited from Sir Matthew White Ridley, then Home Secretary, by Mr. John Wilson that a majority of replies to the circular favoured the suggested reform and a very large majority desired some change, but the nature of such change was the cause of a very great difference of opinion. At present "an inquest on the death of man" is void unless the body has been viewed by the coroner, by the identifying witness, and by the inquest jury. The last should not view the body until they have been sworn in, as prior to that they are not a jury. This rule is very often ignored by coroners. In the absence of an identifying witness and where charges of negligence or violence precedent to the death are preferred the inquest jury have little need nowadays to view the body of what in our modern congested civilisation must in most cases be that of an entire stranger. A summary of the history of this ancient custom was given in THE LANCET of Nov. 18th, 1905, p. 1501.

The Overlying and Accidental Burning of Children.

A Bill to amend the Prevention of Cruelty to Children Act, 1904, has been introduced in the House of Commons by Mr. Bramsdon, M.P., and has among its "backers" Mr. T. P. O'Connor, M.P., and Mr. Rufus Isaacs, K.C., M.P. The object of the proposed law is to prevent the overlying of young children by adults sleeping with them in the same bed and also the accidental burnings and scaldings which so frequently result from the absence of a fireguard. It will be remembered that a conference was held towards the end of last summer by some members of the executive committee of the National Society for the Prevention of Cruelty to Children and a deputation of members of the Coroners' Society and of the British Medical Association, at which this subject was discussed and at which the forms which preventive legislation might take were suggested. These were described and commented upon in a leading article in THE LANCET of Sept. 15th, 1906, p. 749. When the Act of 1904, the amendment of which is now proposed, was first introduced the Rev. Benjamin Waugh tried to get included in it clauses making it "exposure" of a child to leave it alone with an unprotected fire and also the "perilous overcrowding of any infant in bed or the going to bed drunk with any infant." These proposed additions to the law were, however, struck out and the new Bill embodies the proposals made by Mr. C. L. Rothera, the coroner for Nottingham, at the conference referred to, by which the law shall be invoked whenever it shall be proved that death has taken place owing to the causes under discussion. In other words, it is not proposed that the act of taking a child to bed with grown up persons shall in itself be punishable or the act of leaving a child alone in a room with an unguarded fire, even when injury to the child results, but that if the death of a child shall be proved to have been due to these causes then the neglect involved shall become an offence within the meaning of the Prevention of Cruelty to Children Act, 1904. It has no doubt been felt that the suggestion of possible inquisitorial supervision of the homes of the poor would injure the prospects of a useful measure in Parliament but that none could object to a Bill designed on the face of it to protect lives by punishing those responsible for unnecessary deaths. We can only repeat what we have said before—that industrious, kind-hearted, and sober parents are not likely to be injuriously affected by such a law and that the ingenuity of parents and of manufacturers called upon to meet a new demand should soon provide at a low cost such apparatus as the cots and fireguards required. The amendment of the law is urgently needed in order that it may be possible to punish (with such severity as may be appropriate to the individual case) parents who are not sober, not kind-hearted, and not hard-working, who recklessly fail to provide for the safety of their offspring, and through whose neglect poor little children die premature and painful deaths. There is no fear that our judges, magistrates, or juries will allow undeserved punishment to fall upon fathers and mothers whose children's deaths are due to unavoidable circumstances. All parents and persons having the custody of children, however, will have to consider the risks involved and to take precautions which will diminish not only the number of deaths that now take place but injury, suffering, and ill-health not resulting in actual loss of life. The extent of this suffering may be judged from the fact that in recent years the deaths from the causes indicated have amounted to between 3000 and 4000 per annum.

Looking Back.

FROM

THE LANCET, *SATURDAY*, March 14th, 1829.

DOUBLE PUPIL IN ONE EYE.

A remarkable case of double pupil was observed by Professor Pacini, of Lucca, in a young man who, in his childhood, had, from an unknown external cause, been affected with chronic inflammation of the left eye, which had left it in the following state:—The external parts of the eye are healthy, the cornea is perfectly transparent, except at its external part, where there is a small pterygium; the pupil is elliptic, the fourth part of a line in height, and one line in breadth, and immoveable even in the strongest light. The upper eye-lid being raised, another pupil, three lines and a half in its largest, and one line in its smallest diameter, is discovered at the upper portion of the iris; it is somewhat directed towards the internal angle of the eye, and likewise insensible to light The parts behind it are perfectly transparent. The young man is long sighted, and squints, the left eye being constantly turned towards the nose; whenever he looks at an object with both eyes, he sees it simple and distinct; if the healthy eye be closed, and the accessory pupil covered, the object appears confused, but if seen with the superior pupil only, it appears simple and distinct. Whenever he looks with the morbid eye at an object placed before him, he sees its right half only, and that double; in order to see it simple, he is forced to direct the eye towards the external angle, and even then the right half is seen more distinctly and somewhat higher than the other. Objects appear of the same

size, whether seen with the morbid or healthy eye; and continued exertion of the former produces a disagreeable sensation in the interior of the globe, so that he is obliged repeatedly to close the eyelids.—*Journ. des Progr.*

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8236 births and 5605 deaths were registered during the week ending March 9th. The annual rate of mortality, which had been equal to 17·1 and 18·4 per 1000 in the two preceding weeks, declined again to 18·2 in the week under notice. During the first ten weeks of the current quarter the death-rate in these towns averaged 19·5 per 1000, the rate during the same period in London being 19·7. The lowest death-rates in the 76 towns during the week were 8·1 in Hornsey, 10·2 in Wallasey, 10·4 in Northampton, and 10·7 in Ipswich; the rates in the other towns ranged upwards to 25·8 in Norwich, 26 4 in Huddersfield, 28·8 in Merthyr Tydfil, and 30·1 in Bury. The 5605 deaths in the 76 towns showed a decline of 47 from the number returned in the previous week, and included 470 which were referred to the principal epidemic diseases, against 390 and 440 in the two preceding weeks; of these, 205 resulted from measles, 105 from whooping-cough, 69 from diphtheria, 35 from scarlet fever, 33 from diarrhœa, 23 from "fever" (principally enteric), and not one from small-pox. The deaths from these epidemic diseases were equal to an annual rate of 1·5 per 1000 in the 76 towns, the rate from the same diseases being also 1·5 in London. No death from any of these epidemic diseases was registered in Oldham, Huddersfield, Hornsey, Coventry, or in four other of the 76 towns; the annual rate therefrom, however, ranged upwards to 5·2 in Grimsby, 5·3 in West Bromwich, 5·4 in East Ham, and 6·2 in St. Helens. The 205 fatal cases of measles showed a marked further increase upon recent weekly numbers and caused an annual rate of 3·4 per 1000 in East Ham, 4·4 in Grimsby, 5·1 in St. Helens, and 5 3 in West Bromwich. The 105 deaths from whooping-cough were fewer by 12 than those in the previous week, the highest annual rates therefrom being 1·2 in York, 1·4 in Nottingham and in South Shields, and 1 9 in East Ham. The 69 deaths referred to diphtheria showed an increase of nine, and were proportionally most numerous in Derby. Scarlet fever was most fatal in Newport (Mon.), and diarrhœa in Rhondda and Bournemouth. The deaths from "fever" showed no marked excess in any of the towns. Cerebro-spinal meningitis caused one death in St. Helens. No case of small-pox has been under treatment in the Metropolitan Asylums Hospitals since the end of June last. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital, which had steadily declined in the ten preceding weeks from 3846 to 2878, was again 2878 in the week under notice; 306 new cases of this disease were admitted to these hospitals during the week, against 368, 322, and 326 in the three previous weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 379 and 432 in the two preceding weeks, declined again to 405 in the week under notice, but were eight above the corrected average number in the corresponding week of the last five years. The causes of 55, or 1·0 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, West Ham, Bradford, Newcastle-on-Tyne, and in 44 other of the 76 towns; the proportion of uncertified deaths, however, showed a marked excess in Preston, Sheffield, Hull, Middlesbrough, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 18·8 and 20·3 in the two preceding weeks, further rose to 20·6 in the week ending March 9th, and exceeded the mean rate in the 76 English towns by 2·4. The rates in the eight Scotch towns ranged from 13·2 and 16 5 in Greenock and Perth to 22·4 in Aberdeen and 22 5 in Leith. The 716 deaths in the eight towns showed an increase of ten upon the number in the previous week, and included 112 which were referred to the principal epidemic diseases, against 71 and 98 in the two preceding weeks. These 112 deaths were equal to an annual rate of 3·2 per 1000, which exceeded by 1·7 the rate from the same diseases in the 76 English towns; they included 52 which were referred to "fever," 26 to whooping-cough, 15 to diphtheria, 13 to diarrhœa, six to measles, and not one either to scarlet fever or small-pox. The deaths referred to "fever," which had been 49, 25, and 47 in the three previous weeks, further rose to 52 in the week under notice, and included 32 in Glasgow, ten in Leith, nine in Edinburgh, and one in Dundee; 28 of the 32 deaths from "fever" in Glasgow, seven of the nine in Edinburgh, all the ten in Leith, and the death in Dundee were certified as cerebro-spinal meningitis. The 26 fatal cases of whooping-cough, against 27 and 25 in the two previous weeks, included 21 in Glasgow and three in Paisley. The 15 deaths referred to diphtheria showed a considerable increase upon recent weekly numbers; seven occurred in Glasgow, three in Dundee, and three in Paisley. The fatal cases of diarrhœa were also more numerous, including six in Glasgow, three in Edinburgh, and two in Aberdeen. Measles caused three deaths in Aberdeen and two in Glasgow. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had declined from 178 to 124 in the four preceding weeks, rose again to 149 in the week under notice, and exceeded the number in the corresponding week of last year by 24. The causes of 22, or 3·1 per cent., of the deaths registered in the eight towns during the week were not certified or not stated; the mean proportion of uncertified deaths in the 76 English towns during the same week did not exceed 1·0 per cent.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had been equal to 31·4, 27·1, and 28·6 per 1000 in the three preceding weeks, declined to 25·2 in the week ending March 9th. During the first ten weeks of the current quarter the death-rate in the city averaged 28·3 per 1000; the mean rate during the same period did not exceed 19·5 in London and 20·0 in Edinburgh. The 189 deaths of Dublin residents registered in the week under notice showed a decline of 25 from the number in the previous week, and included ten which were referred to the principal epidemic diseases, showing a slight increase upon recent weekly numbers. These ten deaths were equal to an annual rate of 1·3 per 1000, and included seven from whooping-cough, one each from measles, diphtheria, and diarrhœa, and not one either from small-pox, scarlet fever, or "fever." The fatal cases of whooping-cough corresponded with the number in the previous week. Four deaths were also referred to cerebro-spinal fever. The deaths in the city included 29 of infants under one year of age and 51 of persons aged upwards of 60 years; both these numbers showed a marked decline from the numbers in the previous week. Three deaths from violence and seven inquest cases were registered; and 73, or 38·6 per cent., of the deaths occurred in public institutions. The causes of four, or 2·2 per cent., of the deaths registered during the week were not certified; the percentage of uncertified deaths in the week under notice was equal to 4·5 in Edinburgh, while it did not exceed 0·2 in London. The 167 deaths registered in Belfast during the week ending March 9th included 21 certified as due to cerebro-spinal meningitis or cerebro-spinal fever.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Staff Surgeon: T. W. Philip, to the *Topaze*.

ROYAL HORSE GUARDS.

Captain Percival J. Bodington, from the Royal Army Medical Corps, to be Surgeon-Captain, vice St. John B. Killery, who exchanges (dated March 1st, 1907).

ROYAL ARMY MEDICAL CORPS.

Captain J. S. Bostock has arrived at Portsmouth for duty. Major T. B. Beach, from Chatham, has been appointed to the Royal Arsenal, Woolwich, for duty.

Surgeon-Captain St. John B. Killery, from the Royal Horse Guards, to be Captain, vice Percival J. Bodington, who exchanges (dated March 1st, 1907). Captain St. John B. Killery to be Major (dated March 1st, 1907).

Captain F. A. Stephens has been appointed Recruiting Medical Officer at Edinburgh.

ROYAL ARMY MEDICAL CORPS IN INDIA.

The following appointments have been made:—Lieutenant-Colonel T. P. Woodhouse, on being relieved of his present appointment, to command of the Station Hospital, Kasauli. Lieutenant-Colonel R. Holyoake to command of the Station Hospital, Dagshai. Major W. G. Beyts to command of the Station Hospital, Subathu. Lieutenant-Colonel F. J. O'Donnell has returned to Quetta from privilege leave. Lieutenant-Colonel S. Westcott has arrived at Mhow and assumed command Station Hospital there. Captain E. W. Powell has arrived at Poona. Captain T. F. Ritchie has arrived at Aden from the Northern Command. Captain J. P. J. Murphy sailed for England (tour expired) on Feb. 8th. Lieutenant W. Benson, nominated for duty in the Northern Command, has, on arrival in India, been posted to Rawal Pindi. Lieutenant-Colonel H. B Mathias, D.S.O., has been transferred to Simla for duty at army head-quarters. Lieutenant M. D. Ahern has been transferred from 1st (Peshawar) to the 3rd (Lahore) Division. Leave out of India to following officers has been granted—namely: Major H. W. K. Read, six months; Captain E. S. Worthington, seven months; Captain W. F. Tyndale, six months; Captain D. O. Hyde, six months; and Lieutenant F. H. Noke, six months.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Captain Alexander Macdonald to be Surgeon-Major (dated Feb. 27th, 1907).

SIR JOHN HARRY KER INNES, K.C.B., SURGEON-GENERAL, A.M.D. (RETIRED).

We regret to announce that this veteran army surgeon, whose record includes distinguished service in the Crimea, the Indian Mutiny, and on the British Sanitary Commission at the German headquarters during the war of 1870–71, is seriously ill from double pneumonia at his residence in Florence. Till lately, in spite of his 87 years, he was one of the most active members of the English-speaking colony in the Tuscan capital, but the influenza, which has been epidemic for the last three months on the Italian Riviera and in the chief inland towns, attacked him early last week, and, now that the pulmonary complication has supervened, leaves little hope of recovery.

Correspondence.

"Audi alteram partem."

THE SURGEON'S POWER OF LIFE AND DEATH.

To the Editors of THE LANCET.

SIRS,—I read with interest Dr. J. A. Rigby's verbose and effusive epistle published in THE LANCET of Feb. 16th in reply to a leading article which had appeared some weeks previously in your paper. I had not the pleasure or otherwise of reading Dr. Rigby's original contribution to the *Independent Review* so that I am not in a position to criticise it, but many of the statements in his letter appear to me open to criticism. He states "as soon as a man has obtained any medical qualification he is at once given the power of deciding whether a person consulting him shall be submitted to an operation which may cost him his life." Literally that statement is true enough, but practically such a thing seldom occurs. Speaking generally, one finds that a newly qualified man either goes as an assistant in private practice or takes a resident hospital appointment. Now, I venture to assert that few principals will permit their assistants to operate in serious cases, and house surgeons are not, as a rule, allowed to undertake serious major operations. If a man just qualified starts practice for himself, he will not at first have many opportunities of deciding this momentous question. Thus Dr. Rigby raises an alarm in a matter that, practically speaking, never occurs.

I cannot pass Dr. Rigby's remarks on appendicitis without comment. I think his experience in such cases must be unique, for only to have seen two cases in over 30 years of medical work is remarkable and the people of Preston and district are to be congratulated on their singular immunity from that complaint. He appears to argue that operative interference has not reduced the mortality and that the mortality has been increased by cases unnecessarily operated upon. I do not agree with him. Personally I have seen at least two cases in which death ensued owing to operative interference being delayed too long. Does he advise medical treatment for gangrenous appendicitis with secondary peritonitis? Perhaps such would come under his cases "suitable" for operation, although, in my opinion, the risk is far greater when operation is delayed so long. The mortality in this condition is to a large extent due to cases being handed over to the surgeon when the patients have been poisoned by the toxæmia and when they are in an almost moribund condition. I do not assert that all cases require operation—far from it, for I believe that a large percentage of cases will get well under medical treatment.

Dr. Rigby's bitter tirade against modern surgery is unjust and unfair. I do not agree with everything brought forward by the "advanced" surgeon, but I think his wholesale condemnation of modern methods quite untenable. There is not the least doubt that rapid and progressive development of modern surgery has done much to alleviate human suffering and to save many lives. Dr. Rigby's unjustifiable attack on Dr. Russell has been ably answered by that gentleman himself. I am in perfect agreement with Dr. Russell's remark about the part the physician must play in cases where the surgeon's help may be necessary. The physician should strive to become a skilled diagnostician, but he should take note of surgical advancement, so that he may be able to advise in the interest of his patient, should the assistance of his surgical colleague be necessary. I should like to know if Dr. Rigby advises his patients suffering from cancer to bear up bravely and patiently await death. Or are Preston residents immune from it also? I am not aware of any medicine that will check the progress of cancer, and I believe that the surgeon's knife is the best remedy. If taken early such a procedure affords a means of relief, if not of cure. The skilled physician should endeavour to make his diagnosis early, so that early operation should give the patient a chance of cure. And if relief (as generally happens) only is obtained, is not that worth while?

Dr. Rigby quotes a case in which a gentleman doing an ovariotomy for the first time required some assistance to complete the operation. Truly a most unfortunate spectacle for Dr. Rigby to witness. I should like to know who are to operate in the future if the younger men are not to operate now. Does Dr. Rigby imagine that anyone without experience can do as well as the skilled operator? "Practice makes perfection" is an old saying, and it is only by practice that younger men will attain the requisite skill of their seniors.

Before concluding Dr. Rigby quotes a case from your journal which is irrelevant and immaterial to the discussion and sneers at your journal in publishing such without comment. He evidently believes that your "silence meant consent." I do not think editors as a rule hold themselves responsible for the statements of their contributors and you open your columns for the discussion of that with which you do not agree, as is evidenced by your publication of Dr. Rigby's letter. Everyone is entitled to his own opinion, but I do not think Dr. Rigby will get many of the profession to support him in the majority of his statements.

I am, Sirs, yours faithfully,

March 1st, 1907. J. ALLAN.

ON THE CONDITION OF THE BLOOD-VESSELS DURING SHOCK.

To the Editors of THE LANCET.

SIRS,—This question is giving rise to a somewhat complicated discussion and I should like to be allowed to endeavour to define some of the points at issue and if possible to throw light upon them. My position with regard to Dr. Crile's views is this. His experiments appear to me to have been arranged and carried out with the greatest skill, ingenuity, and precision. As far as I can judge, all his statements of facts have been proved. He has, however, formulated a theory which I believe to be a mistaken one, and I hold that it can find no secure basis on his facts. I

have propounded a view offering, in my opinion, a better interpretation of all the circumstances, and I have pointed out certain phenomena which I consider to be irreconcilable with Dr. Crile's theory but to be fully accounted for by mine. No satisfactory explanation of any of these difficulties except my own has been given. On the other hand, when my theory has been adversely discussed some point concerning facts upon which I fully agree with Dr. Crile has, almost invariably, been selected for criticism.

The letter addressed to you by my friend Dr. Alexander Morison illustrates the state of affairs very well. He holds that I fix my attention too much upon the peripheral circulation. In his view "the cardio-vascular state in shock is one of abased central force accompanied by a simultaneous depression in the neuro-muscular activity of the peripheral circulation."[1] If I had not wished to shorten as much as possible the paper which you were good enough to publish[2] I would have directed attention, as I did on a former occasion,[3] to the fact that I omitted to discuss the important point raised by Dr. Morison because I had no difference of opinion upon it with Dr. Crile. The second statement in Dr. Crile's argument is that the heart muscle is not necessarily enfeebled during shock. He wrote that: "The amount of evidence at hand leads to the conclusion that the heart's action is the last of the great vital functions to fail."[4] In exact harmony with this I stated six years earlier that "there is reason to believe that death from traumatic fever, from shock, or from pseudo-ileus following laparotomy usually begins elsewhere and not at the heart."[5] Dr. Crile showed that when the heart's action had been arrested by asphyxia artificial respiration caused it again to act "after a quiescence of as much as 50 seconds in one case."[6] If blood is adequately supplied to, and taken away from, the heart, the muscular activity of that organ is to a great extent independent and exceedingly persistent. I have myself seen a human heart contracting when all its connexions with the body were severed by a railway injury.[7]

I have examined clinically a number of cases in which the removal of large ovarian tumours caused deep shock, the pulse being hardly perceptible, or quite imperceptible, at the wrist, whilst the heart did not beat quicker than 80 or 90 to the minute, and in one instance was as slow as 48. In this particular patient there was no question of hæmorrhage, the operation being a simple ovariotomy, and in none of these cases was hæmorrhage a marked feature. In such circumstances the immense power of the heart was obvious on feeling the carotids and the heart sounds were loud and distinct. The most definite of these cases were seen when very large, old-standing ovarian tumours were more common than they are now and when the chilling effects of a carbolic spray were added to the depressing influences of the anæsthetic and of the operation. I am quite unable to see any adequate explanation of the phenomena described other than that the vessels were contracted from the periphery up to and including the radials. This view is in accordance with the teaching of every physiologist that stimulation of a sensory nerve causes a contraction of the arteries. I attributed the unusually strong heart action, in part at least, to a cardiac hypertrophy caused by the presence of the tumours and comparable to that found in pregnant women. The condition of some of these patients was so alarming that I am quite sure that neither cardiac acceleration, cardiac excitement, nor cardiac enfeeblement is a necessary accompaniment of severe shock. This view is confirmed by Dr. Crile's observation that "in the experiments in which the cardiac branches of the stellate ganglia had been severed previous to making tests, the heart beat on slowly, and, although death was delayed, it occurred while the heart was beating slowly and regularly."[8] Such positive evidence may fairly be opposed to Dr. Morison's statement that he has never observed peripheral loss of tension with normal central impulse except in cases of hæmorrhage. Dr. Morison's refutation of one of Dr. Crile's statements of fact, if substantiated, would, of course, cut the ground from under that gentleman's feet as well as from under mine. To use Dr. Morison's own metaphor, however, I think he will find it possible to shiver a good many lances without making an impression on the facts as Dr. Crile has stated them. Dr. Morison frankly wrote that he had not read Dr. Crile's work.

Dr. Leonard Williams takes up a position exactly comparable to that of Dr. Morison. He wrote in your issue of March 2nd that I had brought forward "nothing of any real importance" to oppose the arguments of Crile, Leonard Hill, E. H. Starling, Lockhart Mummery, and others, who, in his opinion, had made it abundantly clear that "the blood-vessels in shock are dilated and not contracted."[9] If Dr. Williams had read my paper more carefully and also your report of the discussion at the Royal Medical and Chirurgical Society[10] he would have seen that I quoted Dr. Crile as definitely stating that in deep shock "the arteries were quite empty, the tissues pale, but the venous trunks everywhere were full,"[11] whilst Mr. Mummery asserted that as shock developed "all the small arteries could be seen to relax and fill with blood. When surgical shock had been fully established all the arteries, arterioles, and veins could be seen to be relaxed fully."[12] If Dr. Williams had noted these directly contradictory passages I do not think he would have felt justified in asserting that such differences were of no real importance in a discussion on the condition of the blood-vessels during shock. Neither could he have quoted Dr. Crile and Mr. Mummery as holding identical views on this question, for there can be no doubt that in combating my views Mr. Mummery ran a full tilt against those of Dr. Crile. Unless there is some explanation which I cannot now see it is impossible to avoid the conclusion that either Dr. Crile or Mr. Mummery has fallen into an error of observation. When taken together their statements illustrate the extreme difficulty of obtaining facts and prove to demonstration that even experimental work may lead to erroneous teaching.

In the course of abdominal operations I have never seen any sign of a general relaxation of the vessels unless peritonitis or some interference with the circulation existed. Here I would point out that, in his lectures at the Royal College of Surgeons of England, Mr. Mummery said that shock might be induced by exposure of the abdominal viscera.[13] Such an exposure, if sufficiently prolonged to induce shock, would certainly excite also a peritonitis, in which case exactly those vascular conditions described by Mr. Mummery as characteristic of shock would necessarily be found in the peritoneum. The removal of coils of intestine from the abdominal cavity also frequently involves an interference with the mesenteric vessels and a consequent congestion in the affected coils. But in uncomplicated cases of shock I have always observed, in accordance with the statements of Dr. Crile, that the deeper the shock the more pale and bloodless the tissues became.

I think that in the foregoing remarks I may claim to have shown that my critics are not altogether happy in their arguments if they are to be regarded as supporters of Dr. Crile's teaching. As I understand them they would uphold his theory but will none of his facts. And without doubt the belief that the vessels are fully relaxed during shock is in accord with the conditions which most of us would expect if the vaso-motor centres should break down. Thus the arguments of my opponents seem to me to be strongly in favour of my contention that Dr. Crile's theory can have no sound foundation on his own statements. If it is authoritatively decided that I am in the wrong as regards the points discussed above, some of the most important assertions made by Dr. Crile must also be considered erroneous. His theory if still accepted would then rest on a foundation which is irreconcilable with his expressed views. Surely there is here sufficient evidence to justify my urging the necessity for a reconsideration of this question. I would suggest that if Dr. Crile's view is to be maintained he, or one of his supporters, should categorically explain its relationship to the rise of the specific gravity of the blood and the other phenomena which I have pointed out[14] as being at least difficult to reconcile with it. Failing such explanation, I submit that the physiology and pathology of the condition of the blood-vessels during shock cannot be

[1] THE LANCET, March 9th, 1907, p. 686.
[2] THE LANCET, Feb. 23rd, 1907, p. 497.
[3] THE LANCET, August 26th, 1905, p. 573.
[4] Surgical Shock, p. 143, by George W. Crile, Philadelphia, 1899.
[5] The Physiology of Death from Traumatic Fever, p. 69, J. and A. Churchill, 1893.
[6] Surgical Shock, p. 143.
[7] A note of this observation was published over a pseudonym in THE LANCET, August 25th, 1906, p. 523.
[8] Surgical Shock, p. 143.
[9] THE LANCET, March 2nd, 1907, p. 611.
[10] THE LANCET, Feb. 23rd, 1907, p. 507.
[11] THE LANCET, Feb. 23rd, 1907, p. 497, and Surgical Shock, p. 140.
[12] THE LANCET, Feb. 23rd, 1907, p. 507.
[13] THE LANCET, March 18th, 1905, p. 699.
[14] THE LANCET, Feb. 23rd, 1907, pp. 497, 499.

satisfactorily founded on Dr. Crile's theory and I would again urge that all the phenomena may be fully accounted for by my view—namely, that the small vessels become tensely contracted as a consequence of traumatism. As the injury increases or is repeated the contraction of the vessels extends from the periphery towards the heart. The superficial vessels are more affected than the deeper ones and thus, as the state of shock becomes profound, the bulk of the blood is transferred from the superficial to the central areas in which the medium-sized and larger vessels yield partly to superior force and partly because of the physiological necessity for conserving heat. As a consequence the blood pressure in the somatic areas is lowered, whilst that in the splanchnic area is raised, exactly as in the process of digestion. A general and extending contraction of all the smaller vessels can in no way hinder a transference of the bulk of the blood from the surface to the centre, nor can it interfere with the relative changes in the blood pressure which necessarily follow. This interpretation removes all the difficulties which I have raised in connexion with Dr. Crile's theory and is in perfect harmony with every statement of fact made by him.

I am, Sirs, yours faithfully,

Portman-street, W., March 8th, 1907. JOHN D. MALCOLM.

HENRY VIII.'S BARBER.

To the Editors of THE LANCET.

SIRS,—My attention has been called to a paragraph on p. 604 in your issue of March 2nd entitled "Henry VIII.'s Barber." Permit me to say that though I did quote the standing order referred to (Harl. MS., 642) as applying probably to Edward IV. or an earlier king I made no reference whatever to Henry VIII. performing "partial ablutions on occasional Saturday evenings" or of John Pen being "present at these august ceremonies." The order was undoubtedly obsolete in Henry's time and the mistake has probably arisen through my having stated that Pen held the office of "*King's Barber*."

I am, Sirs, yours faithfully,

March 7th, 1907. SIDNEY YOUNG.

MEDICAL CANDIDATES FOR THE MASONIC SCHOOLS.

To the Editors of THE LANCET.

SIRS,—May I once again through the medium of your widely read columns appeal to medical Freemasons for their votes and assistance on behalf of the medical candidates up for election to the Masonic schools? At the forthcoming elections there is no medical candidate for the Royal Masonic Institution for Boys, but there are two candidates for the Royal Masonic Institution for Girls (election on April 11th)—namely:

PHILLIS KERSHAW, daughter of the late John Cawthron Kershaw, M.R.C.S. Eng., of Ivy House, 41, Tong-road, Leeds.

ELIZABETH EDITH SMART, daughter of the late William Pachey Smart, M.R.C.S. Eng., of 270, Monument-road, Edgbaston, Birmingham.

In again appealing for votes I would point out that boys' votes are as valuable as those for the girls, because an exchange can always be effected. All votes, either for the girls or the boys, sent to me will be gratefully received and acknowledged by me.

I am, Sirs, yours faithfully,

HAROLD S. SINGTON,

Secretary, the St. Luke's Medical Lodge of Instruction.

Hospital for Sick Children, Great Ormond-street, W.C., March 10th, 1907.

THE MEDICAL PROFESSION AND COMPULSORY MILITARY SERVICE.

To the Editors of THE LANCET.

SIRS,—It is remarkable that Surgeon-General Evatt does not see that compulsory military service of the Swiss type is just what is needed to put an end to the evils the existence of which in our army he so justly denounces. It is obvious that the chief cause of those evils is that the great majority of our soldiers are drawn from classes whose standard of life is not high and which have extremely little social and political influence. If we adopt the Swiss system and all youths, who are physically fit for service, are compelled to serve together and to receive in their first year of service military training for about three months, the conditions which last year caused 4000 soldiers to go into hospital with itch and 15,000 with ague will at once be changed. Under the new system there would always be some sons and nephews of Members of the two Houses of Parliament serving in the ranks, and, if preventable evils were allowed to injure the health of our soldiers, the Government would hear a great deal more about the matter than it has heard about such evils in the past or hears to-day. And army doctors would find far more intelligent aid in their efforts to improve health in the army from the officers under the new system than they can receive now, when the old taunt, that our army consists of the dregs of the population officered by the froth, has not lost the whole of its point, though happily it is far less applicable than it used to be. The effect on the health of young Englishmen of three months of good physical training, good food, and steady life, in their twentieth year would surely be welcome to Surgeon-General Evatt as well as to all other medical men. The influence of military training on health and strength is so good in Germany and Switzerland that in both those countries the army has been called the Giant Doctor. Far from tightening "the chains of militarism with deadly force on the medical profession," as Surgeon-General Evatt believes it would do, compulsory military service could not fail to make the community as a whole realise, as it has never yet done, that its military system must be brought under the life-preserving influence of the medical profession.

I am, Sirs, yours faithfully,

T. C. HORSFALL,

A Vice-President of the National Service League.

Swanscoe Park, near Macclesfield.

THE FEES OF PUBLIC VACCINATORS.

To the Editors of THE LANCET.

SIRS,—As it appears quite certain that the President of the Local Government Board intends to reduce the fees of public vaccinators I would suggest to any man holding that office that he should write to his Member of Parliament on the subject and say that if the *minimum* fee is to be lowered the work connected therewith should be lessened.

I am, Sirs, yours faithfully,

Cardiff, March 11th, 1907. T. GARRETT HORDER.

THE SLAUGHTER-HOUSES AT GIBRALTAR.

To the Editors of THE LANCET.

SIRS,—Will you allow me a little space to make a few remarks on your Special Sanitary Commissioner's report on the slaughter-houses at Gibraltar appearing in your issue of Feb. 23rd, p. 547? Your commissioner in describing the slaughter-houses says that "these consist of a group of low masonry huts that may well have been built a century or more ago." It is evident that there has been some confusion in your commissioner's mind between the low range of buildings in which some of the "offensive trades" are carried on and the slaughter-house itself. This, rather, is a comparatively lofty building of modern construction, well lighted and ventilated, and, as the report states, divided into two parts, used by the civil and military authorities respectively.

I may also add that since your commissioner's visit the military side has been improved by the addition of a well-constructed room for the purpose of storing carcasses of beef, &c. The general sanitary conditions of the slaughter-house at Gibraltar compare very favourably with other establishments of the same size both at home and abroad. No exception can be taken to other portions of your commissioner's article pointing out certain obvious defects of structure and arrangement, but the authorities concerned are not neglectful of these matters and remedial measures are to be carried out this year, the necessary funds having been provided. I trust therefore that it will be seen that some portions of your commissioner's report fail to do full justice to the condition of a building on which the local authorities have spent considerable care and money. My excuse for troubling you with this letter lies in the fact that having recently acted as health officer of Gibraltar for some months

I may claim to have a somewhat intimate knowledge of local sanitary conditions.

I am, Sirs, yours faithfully,

OLIVER L. ROBINSON,
Major R.A.M.C.

Gibraltar, March 7th, 1907.

THE ELECTIONS OF GUARDIANS.

To the Editors of THE LANCET.

SIRS,—In a few days there will be an election of guardians. May I impress upon your readers the importance of securing the nomination and election of candidates who are in favour of outdoor relief of deserving aged poor where practicable, and of making such out-relief adequate? The Local Government Board itself issued a circular to this effect in August, 1900 (which may be bought for 2½*d.*), and until old-age pensions can be obtained this is far better than offering to the veterans of industry a painful choice between the workhouse and starvation or at least great destitution. Also, it is most important to elect guardians who will give outdoor medical relief (in the first instance) to all poor persons unable to pay a medical man, without placing obstacles in the way such as making the relief a loan, or requiring the patient (or in the case of a child, a parent) to appear before the guardians. Of course, when the medical man has seen the patient he can decide whether it is a case to be treated at home or in the Poor-law or some other infirmary or hospital. The great point (for the public health) is to take care that cases of illness come before the medical man at a very early stage. By this means we may check infectious diseases such as measles, whooping-cough, fevers of various descriptions, and phthisis. Cutting down medical relief is dangerous to the public health.

I am, Sirs, yours faithfully,

J. THEODORE DODD,
A Guardian and Councillor of the City of Oxford.

March 12th, 1907.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Victoria University.

THE acceptance of the office of Chancellor of the Victoria University by the Duke of Devonshire in succession to Earl Spencer, who retired on account of ill-health, has been received with general satisfaction. It may not be remembered by all that the present Duke's father was Chancellor of the University, so that the Devonshire family has taken an active interest in its progress from very early days.

Medical Degrees at the Victoria University.

At a meeting of Convocation on March 6th a communication was received from the registrar relating to the proposed conditions of award of degree of Doctor of Medicine, which had been approved of by the Senate and Council. They had still to be drafted as ordinances and regulations It was provided, among other things, that—

(1) No candidate will be admitted to the degree of Doctor of Medicine unless he has previously received the degrees of Bachelor of Medicine and Bachelor of Surgery; (2) candidates shall produce evidence of having, subsequently to having received the degrees of M.B. and Ch.B., been engaged for at least one year in attendance on the medical practice of a general hospital or on the practice of special hospital or lunatic asylum, or in scientific work bearing directly on his profession such as is conducted in the medical departments of the University, or alternately of his having been engaged for at least two years in practice other than practice restricted to surgery; and (3) candidates may elect either (i.) to present an original dissertation or (ii.) to undergo an examination.

This was accepted and approved.

A Descendant of Hugh Oldham.

Manchester has a strong feeling of regard for its Grammar School, founded in 1515 by Hugh Oldham, Bishop of Exeter, and is interested in the public bequests of the late Mr. Charles James Oldham, F.R.C.S., of Brighton, a descendant of the bishop, chiefly perhaps because he left £3000 to the Grammar School, together with half the residue of his estate, which may amount to from £7000 to £10,000 The legacy of £3000 is "to be applied for the advancement of learning as the authorities may think fit." Another clause in the will suggests that he may not have been altogether free from the prejudices which we sometimes call insular. He "peremptorily requested and desired that no person be appointed as an additional trustee or executor of his will who shall be either a solicitor, a Jew, or a German, although he may be a British subject, but that he desired rather that a competent business man in a responsible position, such as a bank manager, shall be appointed to such post."

Emergency Cases at Poor-law Hospitals

At a recent inquest by the city coroner it was stated that a woman was kept waiting in a cab outside the Withington workhouse hospital for 35 minutes when suffering from severe burns from which she died. The jury suggested that provision should be made for the speedy admission of such cases. The clerk to the guardians said that no one could regret more than they did that there should have been such delay, but that the workhouse hospital was under the Poor-law and was purely a pauper establishment for the admission of paupers and not an emergency hospital, such as the Manchester Infirmary and the Ancoats Hospital. In this particular case the medical officer was at the very farthest possible point from the porter's lodge attending to a serious case, and if found at once he would have been some time in getting to the lodge. It must be remembered that the workhouse is a very large establishment. The board has decided to establish a special ward where emergency cases can be admitted at once. It is, no doubt, against the Poor-law theory that non-pauper cases should be admitted but it can easily be understood that the friends of a patient would seek the nearest place where treatment could be obtained.

The New Asylum at Whalley.

The block plan of the asylum at Whalley has received the approval of the Home Secretary and of the Commissioners in Lunacy. The latter body says that the scheme generally commends itself as having advantages in concentration and economy of working. The estimate of the funds required from April, 1907, to March, 1908, amounts to £142 517, and the finance committee of the Lancashire Asylums Board, having regard to the fact that the average weekly cost of maintenance was more than the present charge to the unions, does not think it at present advisable to make any reduction.

March 12th.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

Appointments at the General Infirmary.

ACTING on the recommendation of the Faculty, the board of the infirmary has appointed Mr. J. A. Coupland surgical registrar in succession to Mr. H. Collinson who was recently elected assistant surgeon in charge of the convalescent hospitals. Mr. Coupland has during the last two years held the position of resident surgical officer at the infirmary and at a meeting of the Faculty held on March 8th Dr. L. R. Braithwaite was elected his successor. Dr. Braithwaite, like Mr. Collinson and Mr. Coupland, had a distinguished career at the Leeds School of Medicine.

The University.

The written examinations for the second M.B., Ch.B. degrees will begin on Monday, March 18th, and that for the first part of the final examination on the same day. In accordance with recent regulations, which direct that Part II. of the final examination shall be held in July and December, there will be no examination in the subjects included in this part of the examination at the end of this term. In future it has been arranged that the examination in Part I. of the final shall also be held in July and December. The *viva-voce* and practical examinations will follow immediately on the written examinations and the results will be announced on the evening of March 22nd. The work of the term will not end until March 27th and the summer term will begin on April 22nd.

The Association for the Prevention and Cure of Tuberculosis.

A perusal of the seventh annual report of the Association for the Prevention and Cure of Tuberculosis shows that the useful work of this charity is being carried on with continued success and that it is increasing. The total number of patients under treatment during the past year at the sanatorium at Gateforth and at the country hospital amounted to 278, which is an increase of 112 as compared with the previous year. The results of the treatment have been encouraging in many ways. A very useful addition to the accommodation has been made by the provision at Armley Hospital of a Doerker barrack which provides

for the treatment of eight patients. In appealing for an increase in the financial support of the institutions the committee calls attention to the present sources of income. This income amounted during 1906 to only £4097, and this includes a sum of £2000 received under an agreement with the city council whereby the society undertakes the treatment of a certain number of cases. Annual subscriptions are represented by the sum of £1595. The Bradford guardians contribute £122 in respect of the treatment of patients from their union, and the rent, £120, of Armley House, which is used for the acute cases, is generously contributed by Mr. Henry Barran, a member of the committee. The association possesses no invested funds, and being a charity which deals with a disease which claims in the city almost as large a mortality as all the acute fevers added together—namely, 570 as against 587 deaths respectively for the year 1906—it deserves an amount of support which as yet has not been extended to it.

March 12th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Presentation to Sir Henry D. Littlejohn.

ON March 8th Sir Henry D. Littlejohn, medical officer of health of the city of Edinburgh, was presented with his portrait, painted by Sir George Reid. The movement was initiated when Sir Henry Littlejohn resigned the chair of forensic medicine in the University. The presentation took place in the Royal College of Surgeons, the President of the College occupying the chair. There was a large gathering of representatives of the legal and medical professions, several of the lords of session being present. The presentation was made by Lord Stormonth-Darling who spoke both as an old friend and pupil in appreciative terms of Sir Henry Littlejohn's powers as a teacher and as a medical jurist. Dr. John Smith spoke as his oldest medical friend. Sir Henry Littlejohn in a racy and humorous speech acknowledged the honour which had been conferred upon him.

Admission of Women Dentists.

At the annual general meeting of the Odonto-Chirurgical Society of Scotland it was stated that a new departure had been made in connexion with the society by the admission of lady members. The rules of the society had been modified in order to enable it to welcome them.

Inspection of Imported Meat.

The public health committee of the town council of Glasgow has been considering this week the whole question of the inspection of meat imported into the city from other countries. The question has been raised by the corporation veterinary surgeon, who reported that in the course of his duties on Feb. 18th and again on the 20th he seized as unfit for human food a foreleg of chilled beef deposited in the meat market on the stance of the agent of one of the largest meat exporters in the United States. Each foreleg was marked "U.S. Inspected and passed. 3." On examination each foreleg was found to have the costal pleura stripped from the ribs but at places distinct tuberculous nodules remained and on incision glandular invasion was manifest. These forelegs were parts of carcasses which in accordance with the regulations issued by the Bureau of Animal Industry to the Government meat inspectors detailed for duty in the packing establishments of the United States ought to have been rejected as unfit for human food and to have been used for the manufacture of tallow after the diseased parts had been removed. These two cases seem to indicate that meat inspection in the United States is not so trustworthy as it ought to be. In the report of the Bureau of Animal Industry for 1905 it is stated in dealing with this subject that during the year there were slaughtered in the United States 2,333,879 cattle, 3,346,451 sheep, 6,051,836 swine, or a total of 11,732,165—making the average for each working day 37,482. The number of inspectors is given as 40. It therefore follows that, to overtake the examination of 37,482 animals, each inspector will require to examine the carcasses and viscera of not less than 937 animals each day. This calculation, however, does not allow for holidays or illness, otherwise the number of animals which would fall to be inspected by each inspector would be materially increased. Another aspect of this subject of meat inspection which has for some time engaged the attention of the Glasgow authorities is the need for a uniform standard of meat inspection throughout the country. In Glasgow the Public Health Act of 1897 dealing with meat inspection is carried out with considerable stringency, but unfortunately authorities outside the city area do not exercise the same thoroughness. The result of this is that many doubtful animals, more especially pigs, rather than be allowed to run the risk of being condemned on reaching Glasgow, are consigned to areas outside the city where they are cured into hams and no doubt ultimately find their way by rail into the city. The only way for the Local Government Board to deal with such a state of matters is to demand a uniform standard of inspection and no doubt the expediency of such a step will come to be recognised in time.

The Girgenti Home for Inebriates.

The corporation of Glasgow has decided to cease taking into the Girgenti reformatory any new inmates; to ask the Secretary for Scotland to arrange for the early removal of all the present inmates to some other inebriate reformatory or to the State reformatory at Perth; and to discontinue at the earliest possible date the use of Girgenti Home as an inebriate reformatory. The institution was started in 1900 at the invitation of the Government to experiment with the new Act dealing with inebriates. A sum of about £8000 was spent in acquiring an estate under the assurance that the Government would practically give the corporation a free hand. No sooner had the property been acquired than the Government interfered and placed a considerable number of difficulties in its way before it was able to open the institution, and after the institution was opened it was found that the Act which it was asked to administer was sadly defective. The Secretary for Scotland could give it no help, as he acknowledged that in the meantime there was no prospect of legislation on the subject. Also, in addition, notice had been received that the Government grant for patients would from April 1st be reduced from 10*s.* 6*d.* to 7*s.* per head. The experiment has cost the ratepayers of Glasgow about £1300 a year, and, although not entirely a failure as many women have been reclaimed, yet it is not sufficiently a success to encourage the ratepayers to carry it on without more support, financial and otherwise, from the Government.

March 12th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Epidemic Cerebro-spinal Fever in Dublin.

UP to March 12th no additional case of epidemic cerebro-spinal fever has been reported to the public health authorities in Dublin.

Royal National Hospital for Consumption.

The annual meeting in connexion with the Royal National Hospital for Consumption for Ireland was held at the Royal College of Physicians, Dublin, on March 8th. The annual report stated that there had been no further extension of the hospital at Newcastle during the past year. The number of beds is now 100, which was the number originally contemplated when the hospital was founded; they have been fully occupied during the year. The Registrar-General said, in reference to the mortality from tuberculosis in Ireland, that the number of deaths in 1905 was 11,882, representing a rate of 2·71 per 1000 of the population, which means, taking the mortality from the disease in relation to the deaths from all causes, that in every 100 deaths 16 were victims of the malady. As regards tuberculous disease in the Dublin registration area, for 1906 it caused 1694 deaths, representing an annual rate of 4·47 per 1000 of the population. In the registration area the deaths from the pulmonary form of the disease were 1152 in number and represented an annual rate of 3·04 per 1000. Sir Charles Cameron, C.B., said that one of the most potent means of resisting the spread of tuberculosis was the improvement in the dwellings of the working classes. He regretted that out of nine or ten sanitary authorities in Dublin only three or four expressed agreement with the proposed establishment of a sanatorium. He stated, however, that a sanatorium would be erected in Dublin by the

corporation and the three or four sanitary authorities, even if the others did not join.

The Health Commission in Belfast.

The Belfast Health Commission, which opened its session, as recorded last week, on March 5th, has, in addition to hearing evidence, been personally examining many parts of the city. The members wisely decided at the outset to do all the examining of witnesses themselves, but counsel representing the corporation, the Water Board, and certain of the citizens may, if they wish, put questions to witnesses through the commissioners. The citizens' health committee, which asked for the commission, stated through Sir Charles Brett that it did not require counsel. Its object was to get at the facts in the interests of the health of the city and it would through witnesses help the commission in every way. All those examined so far have been official; they include the Irish Registrar-General, Mr. R. E. Matheson, Dr. J. King Kerr, chairman of the health committee, Mr. H. W. Bailie, superintendent medical officer of health, the chief clerk of the corporation, and the borough surveyor. The members of the commission have impressed the public as a body of able men with special knowledge who are determined to get at the facts, while the revelations that have been made indicate a truly appalling state of affairs in a great city. The chairman of the public health committee preferred to the statistics of the Registrar-General of Ireland deductions of his own, but the official ones will probably be adopted. Those who listened to this evidence and that of the superintendent medical officer of health, and of the city surveyor (who said that not 1 per cent. of the houses in Belfast are separated from the subsoil by concrete or other wholly impervious material) must admit that such things alone proved the necessity for the inquiry. No one—even those asking for the inquiry—imagined that the public health administration of Belfast was in such a deplorable condition. At an official dinner given by the Lord Mayor (the Earl of Shaftesbury) on March 9th, in proposing the toast of "Prosperity to Our City, the City of Belfast," the chief magistrate said, "would that, however, in conjunction with her prosperity she was able to receive a clean bill of health. He could only compare the position of the citizens at that moment, he thought, to a family who had determined to give up an old home and were ready to embark on a new house with all the advantages and conveniences that modern invention could provide. Expert help and advice had been called in and the family, having realised the highest ideal of hygienic surroundings, were satisfied they would adopt and live up to the highest standard of health and order that could be attained."

Epidemic Cerebro-spinal Fever in Belfast.

The "spotted" fever epidemic is increasing in Belfast. On March 11th eight fresh cases were notified in Belfast and the numbers to-day (March 12th) are: notified, 173; and deaths, 94.

The Belfast Samaritan Hospital.

The annual meeting of the friends and supporters of the above hospital was held on March 4th, the Lord Mayor (the Earl of Shaftesbury) presiding. From the medical report it appears that during the year 526 patients were treated in the extern department and 176 patients in the wards. Of the latter, 144 required surgical operation. There were seven deaths, six after operation and one from advanced cancer which was inoperable. Owing to the efforts of the ladies' committee most useful improvements have been made in the hospital which have greatly contributed to the success of the surgical work done in it. Financially the hospital is in debt to the extent of £195, but against this is the fact that at a cost of £356, collected by the ladies' committee, the hospital has been completely renovated, the entire building having been newly painted, new linoleum and furnishing supplied, and the lavatories arranged with the most modern fittings. 310 patients were treated in the extern department with no maternal deaths. There was a large class of students from the Belfast and other schools. Financially, the expenses were nearly £300 in excess of the income of the hospital, but owing to the success of the annual bazaar and other donations the management had only encroached on the balance in the bank to the extent of £20.

March 12th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Trypanosomiasis in White Men.

ON Feb. 26th M. Laveran read a paper at the Academy of Medicine founded on a report on some researches undertaken by M. Martin. The sufferers from trypanosomiasis had been treated by M. Martin at the Pasteur Hospital and they all came from the French Congo. It is evident from the cases in question that Europeans cannot be considered immune to this serious disease which was formerly considered to affect only the black races. The treatment employed consisted in giving arsenious acid, trypanroth, and, above all, atoxyl. This last drug was given in the form of a one-tenth solution by hypodermic injection. As a rule, a dose of one gramme was given but sometimes 1·50 grammes were given without ill results. Under its influence the trypanosomata disappeared rapidly from the blood but they very soon reappeared if the medicine were not continued. The glandular enlargements and the rashes disappeared as well as the œdema. Despite the great improvement which four of the cases showed and despite the long duration of the treatment M. Martin did not feel at all certain as to a definite cure. On many occasions the treatment was interrupted and all the various troubles, together with the trypanosomata, reappeared. It would seem, then, that atoxyl has a very real efficacy in sleeping sickness, although it cannot be said to be an absolute cure. The best way of administration appears to be by hypodermic injection, and injection into the cerebro-spinal canal does not seem to have any advantage over the hypodermic method. Not more than 0·5 of a gramme should be given to start with, but it may be rapidly increased to one gramme. Injection should be repeated every five days at first and then once in eight days. The action of the atoxyl seems to be directly upon the trypanosomata which can be seen in microscopic preparations as deformed, swollen up, and sometimes in course of investment by the leucocytes. The solutions must not be sterilised at a higher temperature, for this renders the atoxyl less powerful.

The "Oregogenic" Function of the Thyroid Body.

M. Leopold Levi and M. Henri de Rothschild at a meeting of the Society of Biology held on Feb. 16th drew the attention of the society to a function of the thyroid body which they proposed to call "oregogenic"—that is to say, a function of improving the various "appetites." The two observers had already noted 21 cases in which under the influence of an extract of the thyroid body the appetite for food had considerably increased. Since the period of these observations they have been able to collect a number of confirmatory facts. Thyroid extract, besides improving the appetite for food, appeared to them to increase the cerebral activity. Curiosity, power for work, and the desire for study all appeared to be increased. In the following case sexual desire seemed also to be restored. The patient was 37 years of age and suffered from chronic rheumatism with ankylosis and muscular atrophy. He had congenital cataract and suffered from incontinence of urine, chilliness, fatigue, and arterial sclerosis. Administration of thyroid extract ameliorated the rheumatism, increased the appetite for food, and diminished the feeling of chilliness. Sexual desire, which had been absent since 1901, when the patient suffered from exacerbation of his rheumatism, also reappeared. This reappearance corresponds with the favourable influence exercised by the thyroid treatment upon infantilism.

The Purification of Sewage.

At a meeting of the Academy of Sciences held on March 4th M. Muntz gave an account of some researches which he had made together with M. Lainé on the action of peat in purifying sewage. After having ascertained that peat strongly encourages the development of nitrifying bacteria they thought of applying it to the purification of sewage, which really depends upon nitrification. The sewage of large towns and of big industrial establishments is a very real danger to the public health and the system of spreading it on the land gives rise to ill-tasting crops (*a donné des déboires*). Bacteria beds succeed much better. M. Muntz and M. Lainé have found that peat is extraordinarily active as a nitrifying medium, and that the sewage is purified in a very short time, even in the case of

the most foul examples of the sewage of Paris. Peat, of which there are extensive beds in many departments of France, can thus be considered as an active factor in the war against infection and insanitation.

Hospital Abuse in Paris.

The directors of the Assistance Publique have just issued a poster in the following terms: Advice at hospitals and dispensaries is exclusively intended for the really poor and necessitous. Everyone applying at a hospital must be prepared to prove his identity, to give his domicile in Paris, and to show that he is really poor by a certificate from a *bureau de bienfaisance*, as well as a receipt for his rent. Except in the matter of urgent cases all the medical staff and the other employees of the administration of the Assistance are forbidden to give treatment to anyone whose calling or the amount paid by him in rent appears to make it probable that he is not a fitting subject for hospital treatment. The Assistance will make inquiry into the truth of the statements of patients and if they are found to be abusing the charity the expenses incurred by their treatment will be recoverable by law.

March 11th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Milk-supply.

THE full-dress debate on this subject in the Aula della Reale Accademia di Medicina of Turin brought two facts into prominence—namely, the uncleanliness with which the cows are milked and the milk itself stored and distributed, and, even more important, the widespread propagation of tuberculosis through the milk of diseased cows. As to the first—the uncleanliness—there was evidence given which the representatives of the dairy interest who intervened in the debate tried vainly to rebut or to minimise, evidence which the English-speaking consumer in Italy may be excused for regarding as a strong deterrent against the use of Italian milk even after every precaution, beginning with boiling, has been put in practice. The methods universal in Italian dairies are little better than mediæval—no insistence on the hands of the milking staff, male or female, being previously cleansed, no washing of the cows' udders, and little or no attention paid to the stalling of the cows themselves, couching as they generally do among their own fæcal droppings, amid surrounding conditions offensive to every sense. "Take," said one of the participants in the discussion, "the milk which has been brought to your own house, put it in a flat-bottomed white glass bottle, let it stand for an hour, and then examine the sediment invariably deposited. This, by the usual tests, will be found to be mainly, if not entirely, composed of the fæcal droppings in which the cow has been lying, which have accumulated on the udders, and which no attempt at washing the said udders, much less the hands of the milkers, has even partially removed." That fact alone, typical as it is of Italian methods, which are generally more uncleanly the farther south you go, may absolve me from dwelling longer or in minuter detail on the gruesome theme. As to the second fact—the propagation of tuberculosis through the milk of diseased cows—the most striking contribution to the debate was that of Dr. Giovanni Mazzini, professor of sanitary police and veterinary jurisprudence in the Turinese Scuola Superiore di Medicina Veterinaria. Accepting fully the findings of British bacteriologists as to the communicability of the bovine bacillus of tuberculosis to the human subject, Dr. Mazzini proceeded, on the strength of personal investigation, to reinforce the generally received induction that in the majority of cases tuberculosis is transmitted from the cow to man by contagion through the digestive apparatus—transmission by inhalation through the respiratory organs being rare. Infection is most commonly brought about in "prima infanzia," (first infancy) by the bacilli contained in the cow's milk, which, after being swallowed, arrive, through the digestive apparatus, at the lymphatics and so find their way, in due course, through the circulation into the lungs. Sometimes these bacilli are active enough to induce tuberculosis at the infantile stage or at that of puberty; sometimes their pernicious action, thanks to the patient's resisting power, is delayed till much later in life. As to the prevention of these pathological results Dr. Mazzini, while insisting as emphatically as previous speakers on cleanliness and even on the sterilisation and "pasteurisation" of the milk, would go a step further back and allow no cow to be milked which had not responded satisfactorily to the Behring test as to its immunity from the bacillus tuberculosis. "Three or four cubic centimetres of a solution of crude tuberculin in phenicated water hypodermically injected in a tuberculous cow will raise its temperature from one to two degrees; whereas in a healthy cow the temperature remains unaffected." Such being the case, he would have every milch cow in every Italian dairy subjected to the test by "tuberculinizzazione," the tuberculin being provided by the State gratuitously and the local sanitary authority being charged with the required injections and with the resultant exclusion or admission of the cows. Attempts were made by representatives of the dairy interest to throw doubt on the sufficiency of the test; but Dr. Mazzini, both in the debate and in the subsequent polemic in the journals, professional and lay, succeeded in strengthening his position by reference to experience supplementing his own. From first to last the discussion, conducted with good temper and adequate knowledge, bacteriological and clinical, was creditable to its participants, both of the medical and the veterinary schools, and it will certainly have failed egregiously in its purpose if it does not fructify in legislative intervention for the protection of the public in an article of universal consumption by young and old.

Small-pox on the Frontier.

Imported undoubtedly from France, especially by arrivals from Marseilles, variola of an aggravated form has declared itself in the province of Cuneo. Eight cases (one terminating fatally) have been made public and the next report of the sanitary office is awaited with some anxiety as showing either a diminution or an increase in the epidemic.

Professor Angelo Mosso.

From Syracuse I hear that the Senator Professor Mosso has been for some time in Sicily prosecuting investigations, archæological and anthropological, into the population of the island in prehistoric times. An ancient Cretan tradition refers to an expedition of Minos into Sicily and of his death at Camico. Among the treasure-trove hitherto discovered there are objects pertaining to the iron age and to the Mycenean civilisation. Professor Mosso, who holds the chair of physiology in the University of Turin, is a past master in such investigations and his report, expected next summer, is awaited with much interest in Italy and abroad.

March 9th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

The Study of Medicine by Women.

IT was in 1896 that the Minister of Education allowed women to enter the universities of Hungary for the purpose of studying medicine, pharmacy, and law—in fact, everything except theology and technical science. Since that time the number of female students has increased from year to year, so that while in 1896 there were only two female medical students in 1906 their number exceeded 100. The professorial board of the University of Budapest, taking into consideration the small incomes of the male members of the different professions, does not sympathise with the steady increase of the number of female students, and last session Professor Kmety proposed that limitations to the number of female students should be resolved upon. This suggestion, of course, evoked a reply on behalf of the women students, and Dr. Ajtay, professor of legal medicine, will endeavour to smooth away the differences which have arisen.

Vital Statistics.

The Hungarian Academy of Science offers a prize of 1500 kronen (£60) for the best compilation of the statistical data of the last ten years on the subject of fertility as shown by the birth-rate and death-rate.

A Home for Lying-in Women.

The first home for lying-in women will be erected shortly in Budapest from the proceeds of a bequest by the late Manfred Weiss.

The Instruction of Children in Sexual Matters.

A well-supported movement has recently been started in

Budapest in order that children over 12 years of age should be instructed in sexual matters. The movement itself has been subjected to keen criticism on the part of medical practitioners and teachers. Public opinion also seems to be opposed to the idea, although lectures which have been delivered were attended by large audiences.

The Past and Future of Marriage.

Dr. Bódog Somló, the youngest professor of the University of Kolozsvár, recently delivered an interesting address in Nagyvarad on the subject of the Past and Future of Marriage. He spoke of matrimonial life in prehistoric times and followed the various stages as marriage developed from its most primitive form to the present one. He said that once upon a time men captured their wives by force and later they purchased them. Matrimonial life has always had its economic background. He was optimistic with regard to the future of marriage, and thought that the marriages of the future would be much more idealistic than they are to-day.

March 7th.

NEW ZEALAND.

(FROM OUR OWN CORRESPONDENT.)

Working-Class Dwellings.

IT would seem that the average colonial idea of the old world workman's conservatism has found its echo here. Quite recently the Government bought land close to each of the large centres—Wellington, Auckland, Christchurch, and Dunedin—and thereon erected dainty dwellings for the working men. Although the architects employed were all of the first rank there has been a great hanging back on the part of the *bonâ fide* workmen. The applications have been few and in some instances have come from the wrong people. While utility and ease of running the house have been conserved, the settlements present a most artistic appearance, because in none of them are all the houses of the same type or pattern. The serried ranks of self-same buildings have been avoided, and for this very reason it would seem that the workman has fought shy of them, more especially in Wellington. Some of the reluctance may have been due to the very elaborate schedule of "dont's" which were issued, but it cannot be all attributed to this. The new Minister for Labour, the Honourable J. Millar, has gone very carefully into the whole matter and he has in a measure relaxed the regulations with the result that applications have been more numerous. Old fashions die hard and democrats are just as much the slaves of tradition as those whose rule they so desire to alter.

Private Hospitals.

A Bill was passed in the later days of the session dealing with the important matter of private hospitals. Under 1903 no power to regulate such institutions existed. An amendment to the Public Health Act was made and in virtue of this enactment regulations were issued. The control has now been transferred to the hospitals department and the regulations as to the qualifications necessary in the holder of the licence are to be made more severe. The new Act requires that the licensee must be either (1) a medical man; (2) a registered nurse; or (3) a registered midwife.

Regulations affecting Nurses.

It may be well to draw the attention of British nurses to some parts of the law which control the registration of nurses in New Zealand. Very often considerable disappointment is experienced by a nurse arriving from the old country when she finds that, although she may have had hospital training and may have been in practice for some years, she cannot get on the register here. It would seem, judging from the number of applications made, that there are many capable nurses practising in Britain who have not put in three years' training at one individual hospital. They have spent, say, two years at one and perhaps one or more at another, but the Act which is now in force here requires them to have spent *three years at one hospital*. It would be well for all nurses intending to come out to New Zealand to consider carefully whether their educational course has been such as to permit them to register in the colony. The resignation of the assistant inspector-general of hospitals—Mrs. Grace Neill—marks the close of a departmental career which has been justly termed "excellent." Mrs. Neill was the first lady appointed to this position and since then she has done a large amount of excellent work. "The Nurses Registration Act" was largely the result of her efforts and the establishment of the State maternity homes may also be credited to her.

New Zealand Branch of the British Medical Association.

A general meeting of the New Zealand branch of the British Medical Association was held in Christchurch on Nov. 29th, 1906, to consider the advisability of registering it under the Unclassified Societies Act. In view of the fact that the parent society is applying for a Royal Charter it was decided to hold over the matter. The next meeting of the branch will be held in March at Dunedin.

Obituary.

The death of Dr. D. MacGregor, Inspector-General of Hospitals and Asylums, removes from New Zealand medical circles one of their most scholarly members. A graduate of the University of Aberdeen and an ardent disciple of Professor Bain he came out to this colony to take up the duties of professor of mental philosophy at the University of Dunedin. During Sir Robert Stout's rule as Premier he was appointed to the charge of the hospitals. He did bold and excellent work with respect to the asylums. Great reforms were necessary but it required a strong man to make them. Dr. MacGregor amply justified the trust reposed in him. He was a scholar, a philosopher, and a most honest man. His fine leonine head, his stalwart figure, and his horror of humbug and hypocrisy in all its forms were the things one remembered after a conversation with him.—Mr. James Martin of Middlemarch was thrown out of his trap between McKae's and Moonlight on Dec. 19th, 1906, and received injuries from which he died. The deceased, who was unmarried and about 54 years of age, was in practice in Dunedin with his brother, Mr. Robert Martin, before he took up his practice at Middlemarch a little over two years ago. The deceased was for some time in West Australia.

The Exclusion of Tuberculous Patients.

Attention has already been drawn to the fact that pulmonary tuberculosis is a notifiable disease here and that also it is one of the diseases which may justify exclusion. That the medical men in Great Britain are unaware of this is evidenced by the fact that nearly every week passengers arrive in Auckland or Wellington and are refused admittance by the health department. Only this week two poor souls arrived by the *Kimutaka* and were refused a permit. To send a man in the last stage of consumption upon a long sea voyage is bad, but to send him to a colony which refuses to undertake his keep and that of those dependent upon him amounts to carelessness bordering on inhumanity. It is unfair to expect that this colony should be made the dumping ground of all the indigent incurables and yet the hardship to the patient is great. No persons in the later stages of the disease are allowed to land, unless they be returning New Zealanders. Only those in the earlier stages who can enter into a satisfactory bond that they can provide for attendance in a private sanatorium are allowed to obtain a footing in the colony.

The Inter-colonial Medical Conference.

Dr. J. M. Mason, chief health officer of the colony, has been appointed president of the sanitary division of the next Inter-colonial Medical Conference which is to be held in Melbourne in 1908.

Wellington, Feb. 6th.

CENTRAL MIDWIVES BOARD.—A special meeting of the Central Midwives Board under the provisions of Rule 4 of the rules of procedure was held on March 7th at Caxton House, Westminster, when Dr. F. H. Champneys was in the chair. The name of Eliza Ashton was struck off the roll, the offence being negligence of certain precautions and failing to advise that a medical practitioner should be sent for. The names of Georgiana March, Sarah London, Eliza Gunter, Elizabeth Forrest, and Hannah Hall were also removed from the roll for similar reasons. Louisa Salmon, Maria Schofield, Mary Muffit, Elizabeth Peat, Elizabeth Langston, Mary Ann Ashton, and Ellen Holmes had their names removed from the roll for not providing themselves with necessary appliances and antiseptics. Sarah Morris and Mary Pitt were cautioned concerning their conduct, they not having sent for a medical practitioner when his attendance was necessary.

Obituary.

SIR WILLIAM HALES HINGSTON, M.D., LL.D., D.C.L., F.R.C.S. ENG.

Sir William H. Hingston, an acknowledged leader of surgery in the Dominion of Canada, died at Ottawa on Feb. 19th, as already mentioned in THE LANCET of Feb. 23rd. He was descended from the original Hingston stock of south Devon and east Cornwall, where "Hingston (Hengist) Down" is a memorial of the victory of King Egbert over the Danes, about A.D. 833. The family has had numerous medical members, especially at Plymouth and Liskeard. An Irish branch of the family was founded by Major James Hingston, who was Commissary-General under Cromwell, and received a large tract of land in the south of Ireland for his services. His descendant, Sir William Hingston's father, was an officer in the old 109th Regiment which was raised in Dublin in the latter part of the eighteenth century and sent out to the American war. Here he saw much service and was wounded in two battles. He died in 1831, leaving a widow with six children, one of whom, then an infant, was the future surgeon, having been born at Hinchinbrook, in the province of Quebec, in June, 1829. His childhood was passed in a wild part of Canada, where hunting and fishing were the chief occupations. Young Hingston was educated at Montreal College and later at McGill College. He came to Europe about 1852 and studied at Edinburgh as well as at Berlin, Paris, and other continental cities, taking the degree of M.D. and obtaining the Fellowship of the Royal College of Surgeons of England. Returning to his native country he devoted himself to surgery, being on the staff of the Hôtel Dieu Hospital, Montreal, of which he eventually became surgeon-in-chief. He was also professor of clinical surgery at the University of Laval and was president of the provincial board of health in 1876 and 1877. He married in 1876 Margaret, daughter of the Hon. D. A. Macdonald, formerly Lieutenant-Governor of Ontario. He took a keen interest in public affairs and was mayor of the city of Montreal from 1875 to 1878. In 1875 he was appointed a Commander of the Roman Order of St. Gregory; he received the honour of knighthood from Queen Victoria in 1895; and was made a Senator of the Dominion of Canada in 1896. In 1895 he published a treatise on the "Climate of Canada and its Relations to Life and Health." When the British Association for the Advancement of Science met in Canada some years ago he was appointed vice-president. He was also successively secretary and president of the Canadian Medical Association.

Personally, Sir William Hingston was tall and handsome and his manner was genial and kindly. He was a Roman Catholic and was highly respected throughout the province. He had several children, one son entering the medical profession.

THE HON. ALAN PERCY HARTY MOLYNEUX HERBERT, M.D. PARIS.

MANY readers of THE LANCET at home and abroad will learn with regret of the death of Dr. the Hon. Alan Herbert at his residence, 18, Rue Dupbot, on March 8th. Dr. Herbert had been ill for a few weeks, having had a cerebral hæmorrhage followed by hemiplegia about a month ago. He was attended throughout by his comrade in the *internat* of the Paris hospitals, Dr. Labadie-Lagrave. Dr. Herbert was the *doyen* of English practitioners in Paris and on the Continent, and was appealed to by them on many occasions for counsel and assistance. At his death-bed were his sisters, the Dowager Countess of Carnarvon and Lady Gwendolen Herbert, who went to Paris a few days previously. He was 71 years of age. In 1901, when the Hertford British Hospital was made over to the British Government by deed of covenant, Dr. Herbert resigned his position of visiting physician, although up to that date he had faithfully attended the wards and the out-patients since its inauguration in 1871—30 years' service.

The Hon. Alan Percy Harty Molyneux Herbert was a son of the third Earl of Carnarvon and was educated at Harrow and Oxford. He then went to Paris, studied medicine, and in 1865 was appointed to the coveted post of *Internes des Hôpitaux*. He took an apartment to begin practice in the Rue Chauveau-Lagarde, but on the declaration of the Franco-German war a few months later he offered his services once more as *interne* to help to replace those who had left for the front. His whole professional life was associated with the Hertford British Hospital founded by Sir Richard Wallace. The *Anglo-American Annual* gives the following interesting account of its inception:—

It grew up, so to speak, during the two sieges of Paris, in 1870 and 1871. In its origin, it was an appendage to an ambulance; within a year, it became a distinct and permanent institution. Early in January, 1871, during the most distressing period of the German siege, Sir Richard Wallace opened, for the reception of the sick British poor shut up in Paris, two wards immediately adjoining his hospital for the wounded, in the Rue d'Agueseau; and at the same place a dispensary where outpatients daily received gratuitously medicine and advice. On the 1st of August, the patients, civil and military, were transferred to a commodious house, fitted up for their reception, at Levallois Perret, where, on the 15th of November, there remained only one wounded soldier under treatment; since his discharge, the Hertford British Hospital has been an institution exclusively for British subjects.

On the 2nd of October, Sir Richard Wallace invited to meet him, at his residence, Falconer Atlee, Esq., H. B. M. Consul; Sir John Rose Cormack, M.D., and the Hon. Alan Herbert, M.D., to receive from him in a more formal manner a communication to the effect that he had resolved to build and endow in Paris a hospital for the medical and surgical treatment of poor British subjects to be called the "Hertford British Hospital" in memory of the late Marquis of Hertford. Sir Richard intimated that as a considerable time might elapse before a suitable site could be obtained and permanent buildings be constructed he had taken as a temporary installation the house, garden and dependencies, No. 5, Route de la Révolte. Sir Richard Wallace at the same time intimated his desire to give the management of the hospital and the appointment of its officers and servants to a committee, consisting of himself, Mr. Atlee, Sir John R. Cormack, and Dr. Herbert, the two latter constituting the medical and surgical staff. The committee of management was forthwith constituted in accordance with Sir Richard's proposition; and a formal minute to that effect was drawn up and signed by those present. Subsequently, M. Emile Levasseur was added to the committee. At the meeting of the 2nd of October, when the committee was constituted, Dr. Charles Shrimpton was appointed honorary consulting physician, on the proposition of Sir Richard Wallace. The Hertford British Hospital was—as appears from the preceding statement—definitely instituted on the 2nd of October, 1871, and was opened for the reception of patients on the 15th of November, 1871.

The foundation-stone of the new building was laid by Sir Richard and Lady Wallace on the 24th of August, 1877, the anniversary of the death of the Marquis of Hertford. The opening of the new building for the reception of patients was formally inaugurated by a visit from Lord Lyons, British Ambassador at Paris, on the 16th of April, 1879. On the 4th of June, 1879, their Royal Highnesses the Prince and Princess of Wales and the Princess Victoria made a visit of nearly two hours to the Hospital. On that occasion His Royal Highness, at the request of Sir Richard Wallace, named the principal male ward *Albert Edward* and the principal female ward *Alexandra*. In July, 1900, Lady Wallace made over the Hospital to the British Government by deed of covenant when the present committee of management was appointed by H.M.'s Government. The hospital was then thoroughly cleaned, a new drainage scheme was laid down, the electric light installed, and the ventilation and heating improved, and a well-equipped operating-theatre has since been added.

With Dr. Herbert's failing health his practice had necessarily diminished in recent years, but for several decades following the war his popularity and success were very great. He was unsparing of himself to the end and will be as much missed by the poor of Paris as by its aristocratic visitors, many of whom remained his patients. Soon after the war he was made Chevalier of the Legion of Honour and a few years ago he was promoted to the rank of officier.

WILLIAM HENRY PEARSE, M.D., M.R.C.P., L.R.C.S. EDIN., L.S.A.

Dr. W. H. Pearse died at his residence, 1, Alfred-place, Plymouth, on March 7th, in his 79th year, after a short illness. Dr. Pearse was born at Launceston, Cornwall, where his father was in practice. He received his medical education at the Universities of Edinburgh and Aberdeen and graduated M.D. of the former university in 1851. In 1882 he was admitted M.R.C.P. Edin.

Shortly after graduating Dr. Pearse was elected medical officer to the Liverpool Dispensary, after which he entered the Colonial Emigration Service and visited Australia. Afterwards he went to India, where for 12 years he was surgeon-superintendent of the India Emigration Service. On retiring from the service about 35 years ago he went to reside at Plymouth and shortly afterwards was appointed on the honorary staff of the public dispensary of that town. When the British Medical Association visited Plymouth, about 30 years ago, he read a paper upon the treatment of pulmonary phthisis and particularly referred to the facilities which Dartmoor afforded for dealing with incipient cases of the disease. In his younger days Dr. Pearse did a noble work amongst the poor at the time of the small-pox and cholera epidemics at Plymouth, taking medical charge of two of the temporary hospitals which were erected in the town. Dr. Pearse, who was extremely popular in Plymouth, took an

active interest in municipal matters and will be much missed in the "Three Towns," where his robust and striking figure was so well known, and much sympathy is felt there with his widow, son, and two daughters. The funeral, which took place at Launceston, was largely attended.

EDGAR LEONARD FARNCOMBE, M.A., M.B., B.Ch. OXON., M.R.C.S.ENG., L.R.C.P. LOND.

THE death is announced of Dr. Edgar Leonard Farncombe, which took place at Chudleigh, South Devon, on March 6th from pneumonia after five days' illness. The son of Mr. Richard Farncombe, a Birmingham medical man, Edgar Farncombe was educated at Malvern, St. John's College, Oxford, and St. Bartholomew's Hospital. He took the diplomas of M.R.C.S. Eng., L.R.C.P. Lond., in 1902 and three years later the degrees of M.A., M.B., B.Ch. Oxon. He had a successful career at St. Bartholomew's Hospital, where he held the posts of house surgeon and extern midwifery assistant in 1902 and 1903 and subsequently acted as resident clinical assistant at St. Luke's Hospital. After filling these appointments he went into private practice and at the time of his death he was in partnership with Mr. H. B. Walters at Chudleigh where he was as universally liked and respected as he had been at his school, college, and hospital. His untimely death at the age of 31 years will be mourned by his many friends who will always remember also his devotion to his profession, a devotion which without doubt cost him his life. Dr. Farncombe had been married but little over a year, his wife being the daughter of Mr. J. B. Manly of Birmingham.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Otto, professor of chemistry and pharmacology in the Brunswick Technical School.—Dr. Roland Sticher, *privat docent* of gynæcology in the University of Breslau, in consequence of an accident while tobogganing in the Zobtengebirge.

Medical News.

UNIVERSITY OF CAMBRIDGE.—Professor G. Sims Woodhead has been appointed to represent the University on the council of the Lister Institute of Preventive Medicine, in the place of the late Sir Michael Foster.—Dr. G. S. Graham-Smith has been appointed university lecturer in hygiene.—A university lecturer in pathology will shortly be appointed at a stipend of £100 a year. Applications had to be sent to the Vice-Chancellor by March 12th.—Professor Seward, F.R.S., will represent the University at the Tercentenary Festival to be held at Bologna in June, in honour of Ulisse Aldrovandi.—At the congregation on Feb. 28th C. Killick, Trinity, was admitted to the M.D. degree.—The following degrees were conferred at a Congregation on March 9th:—

M.B.—J. K. Willis, Queens'.
M.B. and B.C.—J. F. Gaskell, Caius; and I. G. Back, Trinity Hall.

TRINITY COLLEGE, DUBLIN.—At the Final Examination in Medicine in Hilary term the following were successful:—

Part I.—W. E. M. Armstrong, Oliver Gogarty, William A. R. Spong, Alfred H. Smith, John C. Baker, and Robert de C. Wheeler.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berne:* Dr. Fritz de Quervain, *privat-docent* of Surgery, has been granted the title of Professor.—*Bordeaux:* Dr. Lande has been appointed Professor of Forensic Medicine.—*Göttingen:* Dr. Wilhelm Weber, *privat-docent* of Mental Diseases, has been granted the title of Professor.—*Heidelberg:* Dr. P. Ernst of Zürich has been appointed Professor of Pathological Anatomy and of General Pathology in succession to Dr. J. Arnold, resigned.—*Louvain:* Dr. Vanderstraeten has been appointed Professor of Ophthalmology in succession to the late Dr. E. Venneman.—*Marburg:* Dr. Küster, Director of the Surgical Clinic, is about to retire.—*Padua:* Dr. Giuseppe Frattin has been recognised as *privat-docent* of External Pathology.—*Prague (German University):* Dr. Oswald Richter has been recognised as *privat-docent* of Anatomy and Physiology.—*Rio de Janeiro:* Dr. Julio Afranio Peixoto has been appointed Extraordinary Professor of Hygiene and Forensic Medicine.

AT the general meeting of the Architectural Association, to be held at 18, Tufton-street, S.W., on Friday, March 22nd, at 7.30 P.M., a paper will be read by Mr. Edwin T. Hall, Vice-President R.I.B.A., on Sanatoria. It will be illustrated by many lantern slides and drawings lent by architects abroad.

UNIVERSITY OF DURHAM.—The members of the Convocation of the University have been invited by the Senate to a conference to be held in the Castle Hall of the University at Durham at 2.30 P.M. on March 20th, for the purpose of discussing the Draft Act for the Reconstitution of the University of Durham. Copies of this Draft Act may be obtained by any graduate on application to the Registrar, the University, Durham, or to the Secretary, Armstrong College, Newcastle-upon-Tyne.

THE MEDICAL SOCIETY OF LONDON.—The 134th anniversary dinner of the Medical Society of London was held at the Whitehall Rooms, Hôtel Métropole, on Wednesday last, March 13th. Professor T. Clifford Allbutt, in the unavoidable absence of the Bishop of Ripon, proposed the toast of "The Society," and in the course of his speech referred to the evolution of clinical, or bedside, research as an indispensable means of advancing medical knowledge. This, he said, must always be the criterion of the science of medicine. He also referred to the advantages which would be derived from the establishment of a Ministry of Health in England, separate from the existing complex and irresponsible organisation which existed. The President of the society, Mr. C. A. Ballance, in an eloquent speech, replied for the society. Dr. J. A. Ormerod proposed the toast of "The Guests and the Kindred Societies," which was responded to by the Right Hon. Sydney Buxton, M.P., Postmaster-General, Sir T[illegible]mas Smith, Mr. J. Warrington Haward, President of the Royal Medical and Chirurgical Society, and Alderman and Sheriff T. B. Crosby, M.D. Sir Lauder Brunton proposed the toast of "The President of the Society" and Dr. F. de Havilland Hall gave that of "The Secretaries and Other Officers."

LEICESTER INFIRMARY EXTENSION: THE NEW EAST WING.—On Feb. 27th the Duke of Rutland, who was accompanied by the Duchess, laid the memorial stone of the new east wing in the presence of a large and representative gathering. Successive mayors of the borough have since 1896 been raising funds for extending the usefulness of the institution and the new wing marks another step in that direction. The original idea was to remodel the wing but the architects strongly advised that the wing should be entirely rebuilt. The new block is separated from the existing buildings by cross-ventilated lobbies, carried on bridges, which will allow of a free circulation of air between the wing and the other buildings. The new wing will provide accommodation for 99 beds, but pending the building of a nursing home will be set apart for the use of the nurses. The accommodation at first will therefore be for 66 beds. Each ward is planned in a similar manner. They will each contain 30 beds, with a window between each bed. In the centre of the wards there will be two small wards for two beds and one bed respectively, together with nurses' room, bathroom, linen room, patients' clothes room, clinical room, ward kitchen, and sanitary annexe. At the south end of the larger wards provision is made for two sanitary annexes, one containing bath and lavatories and the other the nurses' workroom with the necessary conveniences. These annexes, it should be explained, are separated from the ward by a cross ventilated lobby carried on a bridge. There will be a bed lift from the basement to the top of the building and on the ground floor a verandah will run the whole length of the west side of the ward, thus enabling beds to be wheeled on to it from the ward. Verandahs will also be erected on each floor and the south end of the other wards. The heating arrangements will be an extension of the present vapour system, assisted by open ventilating stoves. The new wing when completed will cost £18,000. Donations have already been received amounting to over £26,000, this sum including £6000 given by Mr. Samuel Odames, for many years a governor of the institution, whose generous gift was in celebration of his eighty-fourth birthday. The board of governors, thus having more than sufficient money to meet liabilities for the construction of the new wing, decided to proceed at once with the building of a nursing

home in proximity to the infirmary at an estimated cost of £20,000. For the last few years the nurses connected with the institution have been housed on the outskirts of the town at a private residence leased for the purpose. The Duke of Rutland was presented by the architects, Messrs. Everard, Son, and Pick, with a silver trowel bearing the Rutland coat of arms. The mallet used by his Grace was presented by the contractor, Mr. James Chapman. At the conclusion of the proceedings a luncheon was given by the Mayor and Mayoress (Sir Edward and Lady Wood), the company numbering nearly 250.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—On Feb. 12th Mr. John King, L.R.C.P. Edin., M.R.C.S. Eng., was entertained at a complimentary dinner by the Court Stamford Lodge of Foresters, Stratton (Cornwall), and was afterwards presented with a silver flower bowl on an ebony stand, bearing the following inscription: "Presented to John King, Esq., M.R.C.S., L.R.C.P., by the members of Court Stamford, A.O.F., on his retiring from the medical officership of the court, after 41 years' faithful and efficient service. Stratton, February, 1907."—On Feb. 23rd Mr. Guy Witton Miller, L.R.C.P. Lond., M.R.C.S. Eng., of Pinhoe, Devon, was presented with a silver tea kettle, suitably inscribed, as a mark of respect and esteem by friends and patients in Pinhoe, Broadclyst, and Poltimore on the occasion of his leaving the district.

ROYAL DENTAL HOSPITAL OF LONDON.—The annual general meeting of the governors of this hospital was held on March 14th, Mr. William H. Ash being in the chair. The report of the committee of management showed the continued usefulness of the institution. The number of patients during the year was 27,693, their attendances being 53,505. The committee was pleased to be able to report a further increase in the annual subscriptions which it regarded as an important addition to the assured income of the hospital, while it was evidence of the interest taken by the public in the work in which the committee was engaged. During 1908 the hospital will complete the fiftieth year of its existence and a proposal to issue a special appeal during its jubilee year was under consideration. The committee was pleased to report that to a great extent through the aid received from legacies during the year and the liberality of the governors all the outstanding liabilities, including the debt (mentioned in the last report) of £1150, to the bankers, had been paid, but it regretted that the year wound up with liabilities due to bankers and tradesmen of a sum of £769. The hope was earnestly expressed that funds would soon be forthcoming to discharge these liabilities and also the fixed yearly payment of nearly £3000 to the Prudential Assurance Company, representing the interest on mortgage and part repayment of loan.

LONDON INTER-COLLEGIATE SCHOLARSHIPS BOARD.—A combined examination for entrance scholarships and exhibitions tenable at University College, King's College, and the East London College will be held in London by the London Inter-Collegiate Scholarships Board on May 14th and following days. The competition, except for five of the scholarships, is limited to those who have not previously been students at any one of the colleges. No competitor can be elected to more than one scholarship or exhibition. All candidates must have passed the matriculation examination of the University of London, or must furnish some other evidence of having had a sound general education. Some scholarships are open to men only, some to women only, and others to men and women. Successful candidates will be required to enter the College by which they are elected in the October following the examination and to pursue a course of study approved by the authorities of the College. Application should be made to the secretary of the London Inter-Collegiate Scholarships Board, University College, Gower-street, London, W.C., for forms of entry, which must be filled in and returned together with a certificate of age and one of good conduct from the principal of the candidate's last school or other satisfactory reference not later than May 1st. The scholarships and exhibitions offered are as follows:—1. At University College four scholarships of £30 each in classics, modern languages, English history, mathematics, physics, chemistry, and elementary biology or botany. 2. At King's College five exhibitions and two scholarships (of different values, from £20 to £50 each) in classics, science, engineering, and arts. 3. At the East London College six science scholarships and four arts scholarships, all of £40 each. For further particulars regarding the conditions of award, tenure, and payment application should be made to the secretary of the board, Mr. Alfred E. G. Attoe, University College, Gower-street, London, W.C. For particulars of the work of the colleges at which scholarships are tenable application should be made to the respective college secretaries. The total value of the scholarships is over £1500.

THE ASSOCIATION OF CERTIFICATED DISPENSERS.—This association, which was founded a year ago, held its annual meeting on Feb. 28th at the Apothecaries' Hall, Waterlane, Blackfriars, London. The assistants to the apothecaries derive their status from the Apothecaries Act of 1815 and must not be confused with the Court of Assistants of the Worshipful Society of Apothecaries. During the meeting the secretary, Mr. A. Howell, in his report gave an account of the origin of the assistants' qualification and mentioned that an effort was to be made to introduce a Bill in Parliament for powers to alter the title of assistants and to improve the educational requirements of the candidates. Dr. F. S. Toogood then gave an address upon the Status of the Apothecaries' Assistant, in which he pointed out that in the dispensing of medicines for hospitals, infirmaries, and for private medical practitioners' dispensaries, no qualification as evidenced by certification after examination is required by law. He added that the Local Government Board and other public bodies had issued memoranda stating what certificates they were prepared to accept as evidence of proficiency and among these certificates the parchment granted to an assistant by the Apothecaries' Society figured. He urged upon the association the necessity of securing full recognition of this certificate and to be prepared to guard it against attacks from other certificate-granting bodies.

MANCHESTER EYE AND EAR HOSPITAL.—This hospital was conducted at 25, St. John-street, Manchester, for nearly 20 years by the late Dr. David McKeown with a lay committee. Dr. McKeown died recently and a body of trustees who hold funds given specifically to this hospital for its particular work decided that the hospital should be carried on in the same manner as the other public hospitals of Manchester and have since elected two honorary aural surgeons and two honorary ophthalmic surgeons. These gentlemen before their appointment were assured by the trustees that certain conditions referring to the conduct of the hospital and the publication of proper reports and accounts would be fulfilled. The names of those appointed were, as honorary ophthalmic surgeons, Dr. Griffith Apthomas and Mr. G. Aubrey Jelly; and as honorary aural surgeons, Dr. J. A. Knowles Renshaw and Mr. F. H. Westmacott. A medical officer and anæsthetist will also be appointed to assist the honorary staff. In 1906 12 beds available for patients were almost continuously occupied, while the out-patient department had an attendance of 20,613, which included 2654 new cases. The accounts of the hospital are being audited and a provisional committee is being formed. The new constitution of the hospital will be announced at a public meeting the date of which will be notified in the public press. It is intended to establish a system of post-graduate clinical instruction and medical men are invited to visit the hospital at any time during the hours of attendance of the staff. Mr. Westmacott is the chairman of the medical board and Mr. J. D. Sutcliffe is the honorary treasurer and chairman *pro tempore*.

SIXTH INTERNATIONAL DERMATOLOGICAL CONGRESS.—The Sixth International Dermatological Congress will be held from Sept. 9th to 14th at the Academy of Medicine, 17, West 43rd-street, New York, under the following regulations:—1. The meetings will be open to the public. 2. Any member of the medical profession in good standing may become a member of the Congress by registering with the secretary-general at the time of the meeting or previously, or with the secretaries of the respective countries. The fee for membership shall be five dollars (£1), payable to the secretary-general in New York or to the foreign secretaries. 3. Papers should be presented in writing in the English, French, German, Spanish, or Italian languages, and may be discussed in the language most familiar to the speaker. 20 minutes will be allowed to each person selected to present the questions proposed by the committee, and ten minutes to readers of voluntary papers. Five minutes will be granted to any member for discussion of papers. Members desiring to

present papers should announce to the secretary-general the title before May 1st and should send an abstract of the same to him before that date. A full copy of every paper presented should be given to the secretary of the session immediately after it is read. 4. Precedence in debate will be given to members who announce beforehand their desire to take part in it. Papers will be presented in the order as given on the official programme. 5. The proceedings of the Congress will be published, and each member will be entitled to a copy. 6. Clinical sessions will, on certain days, precede those for the presentation of papers, at which proper time will be allowed for the formal discussion of important cases. Time will also be allowed for the exhibition of drawings, paintings, photographs, models, microscopical demonstrations, and apparatus relating to dermatology. The subjects for discussion already arranged for are: (1) The Etiological Relationship of Organisms found in the Skin in Exanthemata; (2) Tropical Diseases of the Skin; and (3) (*a*) The Possibility of Immunisation against Syphilis, and (*b*) The Present Status of Our Knowledge of the Parasitology of Syphilis. A full programme will be sent in June to all who accept membership or who signify their intention to attend the Congress; also details concerning transportation, registration, &c. Any further information may be obtained from Dr. John A. Fordyce, Secretary-General, 80, West 40th-street, New York City.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.—Sir Edgar Speyer presided on March 11th at the festival dinner of this hospital, which was held at the Hôtel Métropole, London. In proposing "Success to the Hospital," the chairman pleaded for funds to carry on the work of the institution. The annual cost of maintenance was £17,000 and the sum needed to be raised every year in benefactions was £12 800. Owing to failure in receipts of legacies, which in 1906 were much below the average, the hospital had to borrow £4000 to make up the shortage between income and expenditure. It was urgently necessary to repay that sum and thus to enable the board of management to maintain the work at its existing level. This toast was acknowledged by Mr. F. Macmillan. Sir Victor Horsley then submitted the toast of "Success to the Nervous Diseases Research Fund." This fund was founded by the board of management to promote and to carry on research into the origin and cure of diseases of the nervous system. Sir Victor Horsley referred to the enormous importance of the study of the bacteriology of nervous diseases, in which branch of science the National Hospital was leading the way. Other speakers were Mr. J. Danvers Power, Sir John Paget, Sir William R. Gowers, and Sir Felix Semon.

UNIVERSITY OF OXFORD.—The Vice-Chancellor of the University of Oxford has received from the Master and Fellows of the College of the Great Hall of the University, commonly called University College in the University of Oxford, a communication to the effect that they have determined to establish and to award a prize for the furtherance of medical science in the University to be known as "The Radcliffe Prize." The prize shall be of the value of £50. It shall be awarded every second year (alternately with the Rolleston prize), provided a sufficiently deserving memoir be submitted for adjudication, by the Master and Fellows of University College at their stated general meeting on March 20th for research in any branch of medical science, comprised under the following heads: Human anatomy, physiology, pharmacology, pathology, medicine, surgery, obstetrics, gynæcology, forensic medicine, and hygiene. The prize shall be open to all graduates of the University who shall have proceeded, or shall be proceeding, to a medical degree in the University. Candidates shall not have exceeded 12 years from the date of passing the last examination for the degree of Bachelor of Arts, and shall not, at the date of application, be Fellows on the foundation of Dr. John Radcliffe. Candidates shall send in their memoirs to the Secretary to the Boards of Faculties on or before Dec. 1st in the year preceding the date of the award. The judge shall be appointed by the Board of the Faculty of Medicine and shall act together with the Regius professor of medicine, or a deputy appointed by him, and with a judge appointed by University College. The judges may call in an assessor or two assessors. They shall report to the Master of University College and to the Board of the Faculty of Medicine on or before March 1st ensuing. No memoir for which any University prize has already been awarded shall be admitted to competition for the Radcliffe prize, and the prize shall not be awarded more than once to the same candidate. The Board of the Faculty of Medicine shall cause to be published in the usual manner due notice (1) of the date for sending in the competing memoirs, and (2) of the conditions of the award; and the Board shall have power on any such occasion to announce that the prize will on that occasion be awarded for research in some particular branch, or branches, of medical science, as above enumerated, provided that such preference be not given to the same subject more than once in any three consecutive competitions. The above regulations notwithstanding, the first award shall, if possible, be made at the stated general meeting of the Master and Fellows of University College on Oct. 28th next ensuing, and the competing memoirs shall be sent in to the Secretary to the Boards of Faculties on or before June 1st, 1907.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Royal Commission on Sewage Disposal.

THE Civil Service Estimates for the year 1907-08, which are now published, show the sums which the Government has allocated fo various temporary commissions, committees, and inquiries. A sum of £4687 is put down for the expenses of the Royal Commission on Sewage Disposal. This is the same amount as it received in 1906-07. This Commission has made several reports of an elaborate nature, one of them dealing with the dissemination of disease by means of contaminated shell-fish and other evils caused by the discharge of unpurified sewage and trade effluents into tidal waters. The systematic investigation of a number of artificial processes of purifying sewage for the purpose of ascertaining their relative value in different circumstances has, according to the statement in the Estimates, now been completed. The report of the whole of this work is now in a forward state and the Commission hopes to present it in the course of a few months. The Commission has not been appointed for any definite period and it is impossible to state yet when a final report on the questions submitted to it will be made. Some of these questions can only be properly determined after careful and prolonged scientific research.

The Royal Commission on Tuberculosis.

For the needs of the Royal Commission on Tuberculosis a sum of £8664 is set down in the Estimates of 1907-08. This amount is £736 lower than the estimate of 1906-07. It is estimated that £7673 will be required in the coming year for scientific investigations, including the expenses of the experimental farms, buildings, and laboratories, and the remuneration of scientific experts. The Royal Commission on Tuberculosis was appointed in 1901 to inquire with respect to tuberculosis, whether the disease in animals and man is the same, whether animals and man can be reciprocally infected with it, and under what conditions, if at all, the transmission of the disease from animals to man takes place. In February the Commissioners issued a second interim report dealing fully with the work that had been done since the commencement. An appendix to this report, in four volumes, containing details of the experimental work is now in the press and will be issued as soon as it is ready for publication. The Commission was not appointed for any fixed period and it is impossible to say definitely when it will be in a position to give a final answer to all the terms of the reference.

The Royal Commission on the Care of the Feeble-minded.

The members of the Royal Commission on the Care and Control of the Feeble-minded hope that their labours will be finally completed by the end of June next. The estimate of £393 is based on this assumption In the year 1906-07 a sum of £4306 was set apart for the expenses of this Commission. Of that amount £630 were put down under the heading of remuneration to medical investigators. Nothing is provided for this purpose in the new Estimates. A brief survey of the work of the Commission is given in a note to the Estimates. It is stated that the Commission was appointed in September, 1904, and the first sitting was held at the end of the following month. The reference to the Commission was extended on Nov. 2nd, 1906, to inquire into the constitution, jurisdiction, and working of the Commission in Lunacy and of other lunacy authorities in England and Wales, and into the expediency of amending the same or adopting some other system of supervising the care of lunatics and mental defectives and to report as to any amendment in that law which in its opinion should be adopted. Up to the date of the extended reference 51 meetings of the Commission were held and 201 witnesses were examined. Since the date of the extended reference, 12 meetings have been held and 35 witnesses examined. Some of the Commissioners

have visited America, Holland, Belgium, France, Germany, Switzerland, Scotland, Ireland (twice), and numerous institutions in England and Wales. Medical investigations have been carried out by specially appointed medical men into the statistics of feeble-minded and defective persons in Manchester, Birmingham, Hull, Glasgow, Stoke-on-Trent, Lincolnshire, Nottinghamshire, Durham, Carmarthen, Carnarvon, Somersetshire, Wiltshire, and four districts in Ireland.

The Royal Commission on Vivisection.

For the Royal Commission on Vivisection the Estimates set apart £1058 for the year 1907-08. This Commission was only appointed in September last and as over a hundred witnesses have already applied to be heard the inquiry may be expected to last for the whole, or nearly the whole, of the financial year 1907-08.

The Education (Provision of Meals) (Scotland) Bill.

Mr. SINCLAIR, the Secretary for Scotland, on Tuesday received a deputation representing the school boards of Edinburgh, Dundee, Leith, and several other smaller Scottish towns, who protested against Parliament passing such a Bill as the Education (Provision of Meals) (Scotland) Bill because it placed the feeding of school children on the rates. After hearing the views of the deputation, Mr. SINCLAIR suggested that a committee should confer with Mr. STRUTHERS, the permanent head of the Scottish Education Department, with the object of overcoming some of their objections to the Bill. This course was adopted.

Deaths from Starvation.

On the motion of Mr. TALBOT a return has been granted by the Local Government Board showing the number of deaths in the Administrative County of London in the year 1906 upon which a coroner's jury has returned a verdict of death from starvation or death accelerated by privation.

Salaries of Medical Officers of Health.

Mr. JOHN BURNS has promised Sir JOHN DICKSON-POYNDER a return showing the salaries of the medical officer of health and of the inspector of nuisances employed by each of the rural district councils in three English counties to be selected. The return will also show the number of cases in which a rural district council in any of the three selected councils has obtained under the Local Government Act, 1888, from the county council, out of the Exchequer contribution account, payment of half the salaries of its medical officer and its inspector of nuisances.

HOUSE OF LORDS.

THURSDAY, MARCH 7TH.

Public Health Legislation.

The Earl of ONSLOW addressed a question to His Majesty's Government whether in its opinion the time had not arrived for further general public health legislation. He said that since 1890 there had been no general Act dealing with police and sanitary matters, with the exception of some legislation which dealt with isolation hospitals and infectious diseases. However, there were a number of local authorities which had desired to obtain further powers than those given in the general Act. The result was that fresh clauses were brought in, in private Bills dealing with these matters. These clauses might, he thought, be embodied in a Public Health Act which might be applied to those parts of the country where the local authorities were desirous of adopting it. In the three years 1903-06, there had been a clause prohibiting persons suffering from an infectious disease from personally carrying on a business introduced into 40 private Bills, and a clause regulating the manufacture and sale of ice-cream had been embodied in many others. It was an accepted principle in dealing with private Bills, that when a clause of this sort had been granted to a number of local authorities it was very rarely refused to other local authorities of equal importance who applied for it. However, the drawback was that these local authorities had to go to the expense of promoting Bills in Parliament in order to obtain the extended powers. He would instance to their lordships a private Bill containing 230 clauses which was before the House. What the expenses of that Bill would be he would be afraid to say. However, it was a fact that if a new Public Health Bill of the kind to which he had alluded were passed into law at least from one-third to one-half of the clauses of this lengthy private Bill would be rendered unnecessary. The same remark applied to other Bills. Now what he would suggest to His Majesty's Government was that if a Bill on public health matters were introduced in either House of Parliament by someone who was not a member of the Government, but who was specially qualified to deal with the subject, it should do what it could to assist the measure through Parliament, and that in the course of its passage it should refer it to a joint committee of both Houses consisting of those who had been accustomed to deal with police and sanitary clauses.

Earl CARRINGTON replied on behalf of the Government. He said that the proposal made by the noble earl would be a saving to the ratepayers. However, the question raised by him was not entirely free from difficulty. A Bill on the subject had been brought into the House of Commons last year by a private Member. It consisted of 101 clauses referring to a great number of subjects, such as infectious diseases, milk, common lodging-houses, recreation grounds, &c. It was necessary that careful consideration should be given how far such a measure was capable of adoption. He was happy to be able to say that no last word on this subject had been said by the President of the Local Government Board. He did not think that Mr. Burns would wish to bring forward any excuse as to the congestion of business to prevent him from introducing any reform of this sort which would be to the great advantage of the country. The President of the Local Government Board quite realised the desirability of giving greater sanitary powers to local authorities. He had a very warm sympathy with the objects which the Earl of Onslow had in view. At present his right honourable friend was unable to give any pledge on the subject, although he was giving it careful consideration with a view to action being taken with regard to it. He hoped that answer would not be unsatisfactory to the noble earl.

The Earl of ONSLOW: The question I asked was whether, if such a measure were brought in by a private Member, His Majesty's Government would give it its sympathy and refer it to a joint committee with a view of getting it through this session.

Earl CARRINGTON: I wish I could answer that question, but at present I cannot.

The subject then dropped.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 6TH.

The Sale of Tuberculous Milk.

Mr. H. H. MARKS asked the President of the Local Government Board whether, in view of the statement in the second interim report of the Royal Commission appointed to inquire into the relations of human and animal tuberculosis, that cow's milk containing bovine tubercle bacilli was clearly a cause of tuberculosis, and of fatal tuberculosis, in man, he would consider the necessity of measures more stringent than those at present enforced being taken to prevent the sale or the consumption of such milk.—Mr. JOHN BURNS: I am giving consideration to the report of the Royal Commission and in connexion with it I will bear in mind the point to which the honourable Member refers.

THURSDAY, MARCH 7TH.

Defective Eyesight in Irish School Children.

Mr. JOHN REDMOND asked the Chief Secretary to the Lord Lieutenant of Ireland whether his attention had been called to the promise given by Mr. Bryce on Nov. 19th, 1906, that he would without delay commend to the consideration of the Commissioners of National Education in Ireland the necessity of collecting information on the subject of the alleged increase of defective eyesight of children attending public schools in Ireland; whether any steps had been taken in this matter; and whether the Commissioners proposed to make any arrangements, such as existed in England, for the testing of the sight of these children and for guarding against any further increase of the scourge of defective eyesight.—Mr. BIRRELL answered: My attention has been called to this matter. The Commissioners of National Education inform me that they have issued a number of queries to the teachers relative to the eyesight of children attending national schools. The teachers' statements will be carefully tabulated and considered when received. The Commissioners state that they have no means of providing for the testing of the children's sight. The steps which have been taken in this respect in England have been instituted by local authorities of their own motion.

The Butter Bill.

Answering Mr. W. REDMOND, Sir EDWARD STRACHEY said: I am afraid that no opportunity will be found for the second reading of the Butter Bill before the Easter recess, but it is hoped that the second reading of the Bill may be obtained soon after. The Bill does not affect the amount of moisture permissible in Irish salt firkin butter unless it has been blended or re-worked in a factory.

The Dietary of Paupers.

Mr. JOWETT asked the President of the Local Government Board whether he had read the observations contained in the report of Mr. P. A. Bagenal, one of the Board's inspectors, on the scale and standard of food in the workhouses, which he thought was too high, in the course of which he stated, on the authority of some alleged scientific discoveries, that the body adapted itself rapidly to any change of diet, and advised that careful attention to that fact should be given when paupers were being fed at the public expense; whether it was the intention of the Board to act on the scientific discoveries mentioned by Mr. Bagenal and experiment upon paupers in the matter of food; and having regard to Mr. Bagenal's further observation to the effect that cheap food in the shape of stale cheese, bread bits, bacon and liver bits, and bones from the butchers' shops were available for human food in all large towns, whether he would say if these inquiries were made with his sanction.—Mr. JOHN BURNS replied: I have seen the observations in Mr. Bagenal's report. The Local Government Board has no intention to experiment upon paupers in the matter of food. No sanction on the part of the Board was given to his making the inquiries referred to in the question, nor was any such sanction necessary. He acted in the matter in the exercise of his own discretion.

MONDAY, MARCH 11TH.

Food Inspection in London.

Mr. ALDEN asked the President of the Local Government Board whether the Public Health (Regulations as to Food) Bill would contain any scheme for creating a uniform system of food and meat inspection throughout the whole of the London area.—Mr. JOHN BURNS replied: The Bill which is now before the House does not itself prescribe schemes. It enables regulations to be made by the Local Government Board for the prevention of danger to public health from the importation, preparation, storage, and distribution of food, and one of its objects is thereby to secure uniformity and efficiency of inspection in the case of particular foods or classes of foods for which control is necessary in the interests of public health whether in London or elsewhere.

The Sanitary Condition of Lewis.

Mr. WEIR asked the Secretary for Scotland whether he was aware that in the last report of the Local Government Board for Scotland it was stated that the present condition of affairs in the Island of Lewis could not be allowed to continue, and that it was essential that there should be in the district a proper staff consisting of a medical officer of health and at least one sanitary inspector, giving their whole time to their duties.—Mr. SINCLAIR answered: I am well aware of the facts. The matter is under the serious consideration of all the departments concerned, but, as my honourable friend knows, it is not a simple problem, and I am not at present able to make any statement.

In answer to a further question by Mr. WEIR, Mr. SINCLAIR said that no portion of the general aid grant for Scotland for the financial year 1907-08 would be specifically set aside to meet the public health requirements of the Island of Lewis, but it would be open to any school board to apply its share of the grant or any portion of it to improving the health condition of its schools.

White Phosphorus in Matches.

In the course of a long written answer to Sir CHARLES DILKE, dealing with the number of persons employed in match factories in this country, Mr. GLADSTONE stated that many of the persons employed in the factories which manufactured white phosphorus matches were not exposed to the phosphorus. He had laid upon the table of the House a report on the recent case of phosphorus poisoning at Messrs. Morelands which also contained some observations upon the general question. He was considering what action to take upon it but he was unable at present to say whether a further report would prove to be necessary.

The Inspection of Boneless Meat.

Mr. FIELD asked the President of the Local Government Board whether he had made any arrangement for the inspection of imported boneless meat; whether he had made any inquiries respecting how it was prepared; whether it was inspected before being frozen; whether he could state how it was disposed of in this country; and whether it was used extensively in the manufacture of pork sausages.—Mr. JOHN BURNS replied (by written answer): I have no authority to make an arrangement of the kind referred to in the first part of the question in the absence of such powers as are proposed to be given by the Public Health (Regulations as to Food) Bill now before the House. I have caused inquiries to be made as to the preparation of boneless meat. It is, of course, liable to whatever inspection is required by the laws of the country from which it comes, and packages of it frequently bear labels stating that inspection has taken place, presumably before freezing. I understand that imported boneless meat is supplied to makers of various meat preparations in this country and that imported boneless pork is employed in the manufacture of pork sausages. The Local Government Board's inspector of foods ascertained that in 1905 the importation of the kind of boneless pork specially used for sausage making amounted to about 130 tons.

Epidemics in a Workhouse School.

Sir WALTER FOSTER asked the President of the Local Government Board whether he was aware that, owing to continued overcrowding in the workhouse school belonging to the Brentford board of guardians, an outbreak of ophthalmia occurred in November, 1904; that in September, 1906, a second outbreak, affecting over 130 children, occurred; and that during January last an outbreak of diphtheria affecting over 50 children, some of whom died, occurred; and whether he would urge upon the guardians the necessity of boarding out within and beyond the union of children eligible for that method, and of hastening the arrangements for placing others in scattered homes within the union in order to relieve the long-standing overcrowding of the school.—Mr. JOHN BURNS (by means of a written answer) replied: I am aware of the facts as to the outbreaks referred to and that from time to time there has been overcrowding in the school. I am very desirous that measures should be taken to prevent future overcrowding in respect of the children, and I understand that the guardians have had various schemes before them for providing further accommodation for them. They have met with difficulties in the matter, but various arrangements have been made to reduce the pressure, and steps are now being taken to provide certain scattered homes. I shall not lose sight of the subject.

TUESDAY, MARCH 12TH.

A Case of Phosphoric Necrosis.

Mr. ARTHUR HENDERSON asked the Secretary of State for the Home Department whether the special rules for match factories dealt with cases in which a worker was in such a state of health as to incur danger from his work; if so, why, in the recent fatal case, a man, stated to have long been known to have the seeds of necrosis in his system, was exposed to phosphorus poisoning, and at what point the dentist had first referred the case to the certifying surgeon; and whether at any time this man was reported by His Majesty's inspector of factories as having the seeds of necrosis in his system.—Mr. GLADSTONE answered: Yes, sir. The rules provide for periodical examination by the dentist whose duty it is to suspend the worker whenever he finds danger of necrosis by reason of bad teeth or exposure of the jaw, and, moreover, to report to the certifying surgeon if there be inflammation or necrosis of the jaw or such a state of health as to involve danger of necrosis. As regards the second part of the question, I perhaps conveyed a wrong impression in the reply I gave to Sir Charles Dilke on Feb. 26th. No suspicion of necrosis arose in the case referred to until after the extraction of a tooth on Dec. 19th last, when the necrosis was found and the case was at once referred by the dentist to the certifying surgeon. It was the discovery then made, when taken in connexion with the history of the fracture of the man's leg, which led to the conclusion that phosphorus had begun to affect his system long before.

The Inspection of Imported Meat.

Sir WILLIAM BULL asked the President of the Local Government Board what action, if any, he proposed to take on Consul Finn's report on the Chicago meat scandals.—Dr. MACNAMARA (who replied on behalf of Mr. BURNS) said:—My right honourable friend has introduced a Bill which, if it passes into law, will enable the Local Government Board to make regulations with regard to the importation, preparation, storage, and distribution of foods. In adopting this course he has taken into consideration not only this report but also information collected from various sources regarding the wholesomeness of the imported meat which is especially in question.

WEDNESDAY, MARCH 13TH.

The Teaching of Hygiene.

In the course of the debate on the report of the Vote of Account with respect to the Civil Services and Revenue Departments,

Dr. V. H. RUTHERFORD advocated the compulsory teaching of hygiene and temperance in all elementary schools. He said that the Committee on Physical Deterioration came to the conclusion that the three causes of degeneration in this country were bad food, bad housing, and alcoholism. It was high time that the Board of Education took steps to remedy this unhappy and unsatisfactory state of things. Two years ago a very large number of medical men signed a petition asking Parliament to make the teaching of hygiene compulsory. He regretted that this had not been done. He urged that it should be made a compulsory subject in the Education Code. The Education Department should encourage the teaching of hygiene. He also thought that the Board of Education should have a bureau of medical men to help with advice, not only on this subject but on other matters.

Mr. MCKENNA (President of the Board of Education) in reply said that if temperance and hygiene, and particularly medical hygiene, were to be compulsorily taught in schools they must have teachers who were competent to give the instruction. At present hygiene was an optional subject. He would give his most earnest attention to the subject. Everything was being done to qualify teachers for teaching it. He could add nothing more to his statement at present.

BOOKS, ETC., RECEIVED.

ALCAN, FÉLIX, Boulevard Saint-Germain, 108, Paris.

Polyclinique Physicothérapique. Effets obtenus par la Balnéation Carbogazeuse (Spécialisation fonctionelle de Royat) chez les Malades hypertendus et les Malades insuffisants du Cœur. Par L. Landouzy, Professeur de la Clinique Laennec à la Faculté de Médecine de Paris et Jean Heitz, Ancien Interne des Hôpitaux de Paris, Médecin Consultant à Royat. Price not stated.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, London, W.C.

Antiseptic Methods for Surgical Nurses and Dressers. By Harold Upcott, F.R.C.S. Price 2s. 6d. net.

Organic and Functional Nervous Diseases. By M. Allen Starr, M.D., Ph.D., LL.D., Sc.D., Professor of Neurology, College of Physicians and Surgeons, the Medical Department of Columbia University in the City of New York. Second edition, thoroughly revised. Price 25s net.

BARTH, JOHANN AMBROSIUS, Leipzig.

Taschenbuch der mikroscopischen Technik der Protistenuntersuchung. Von Dr. S. von Prowazek. Price M.2.

CHAPMAN AND HALL, LIMITED, London.

Hypnotism and Spiritism. A Critical and Medical Study. By Dr. Joseph Lapponi, Chief Physician to His Holiness Leo XIII. and Pius X., Professor of Practical Anthropology at the Academy of the Historic-Judicial Conferences at Rome. Translated by Mrs. Philip Gibbs. Price 5s. net.

FISCHER, GUSTAV, Jena.

Über traumatische Entstehung innerer Krankheiten. Klinische Studien mit Berücksichtigung der Unfall-Begutachtung. Von Dr. Richard Stern, a.o.Professor, Direktor der Medizinischen Universitäts-Poliklinik und Primärarzt am Allerheiligen-Hospital zu Breslau. Erstes Heft: Infektions-Krankheiten, Krankheiten der Kreislaufsorgane. Zweite neu bearbeitete Auflage. Price not stated.

Trypanosomenkrankheiten (Schlafkrankheit) und Kala-azar. Von Prof. Martini, Marine-Oberstabsarzt. Price not stated.

HODDER AND STOUGHTON, 27, Paternoster-row, London, E.C.

The Medical Epitome Series. Pathology, General and Special. A Manual for Students and Practitioners. By John Stenhouse, M.A., B.Sc. Edin., M.B. Tor., formerly Demonstrator of Pathology, University of Toronto, Toronto, Can., and John Ferguson, M.A., M.D. Tor., Senior Physician, Western Hospital, formerly Senior Demonstrator of Anatomy, University of Toronto, Toronto, Can. Series edited by Victor Cox Pedersen, A.M., M.D., Lecturer in Surgery at the New York Polyclinic Medical School and Hospital. Price 4s. net.

HOEPLI, ULRICO, Milano.

Mario Valtorta e Gino Fanoli. La Tuberculosi. Con Prefazione del Prof. Augusto Murri. Price L.3.

Manuale Pratico dell'Igienista. Pei Dottori Clemente Tonzig, Libero Docente d'Igiene nella R. Università di Padova e Medico scolastico del Comune e Guido Q. Ruata, Libero Docente d'Igiene e Aiuto nell'Istituto d'Igiene della R. Università di Bologna. Con Prefazione del Professore A. Serafini, Direttore dell'Istituto d'Igiene della R. Università di Padova. Price L.5.

KARGER, S., Karlstrasse, 15, Berlin. (WILLIAMS AND NORGATE, London.)

Beiträge zur Diagnostik und Therapie der Geschwülste im Bereich des Zentralen Nervensystems. Von Prof. Dr. H. Oppenheim in Berlin. Price not stated.

Nierenchirurgie. Ein Handbuch für Praktiker. Von Prof. Dr. C. Garrè, Geh.Med.-Rat, Direktor der Chirurgischen Klinik der Universität Breslau und Dr. O. Ehrhardt, Privatdozenten für Chirurgie an der Universität Königsberg i.Pr. Price not stated.

KIMPTON, HENRY, 13, Furnival street, Holborn, London, E.C., and 40 and 42, University-avenue, Glasgow.

The Practitioner's Library. The Practice of Obstetrics. In Original Contributions by American Authors. Edited by Reuben Peterson, A.B., M.D., Professor of Obstetrics and Gynecology in the University of Michigan, Ann Arbor, Mich. Price 31s. 6d. net.

Degeneration in Families: Observations in a Lunatic Asylum. By Fr. Lange, M.D., Medical Superintendent of the Lunatic Asylum near Middelfart, Denmark. Authorized Translation from the Danish by C. Chr. Sonne. Price 3s. 6d. net.

LEWIS, H. K., 136, Gower-street, London, W.C.

Injuries of the Eyes of the Employed and the Workmen's Compensation Act. Problems in Prognosis. By W. M. Beaumont, Surgeon to the Bath Eye Infirmary. Price 5s.

MACMILLAN AND CO., LIMITED, London.

A System of Medicine. By Many Writers. Edited by Thomas Clifford Allbutt, M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., and Humphry Davy Rolleston, M.A., M.D., F.R.C.P. Vol. II., Part II. Tropical Diseases and Animal Parasites. Price 25s. net.

MASSON ET CIE, 120, Boulevard Saint-Germain, Paris.

Traité du Paludisme. Par A. Laveran, Membre de l'Institut et de l'Académie de Médecine. Deuxième Édition. Price Fr.12.

POINAT, A., Rue Jacob, 12, Paris.

Traité des Maladies de la Voix Chantée. Par le Dr. Antoine Perretière, Ancien Interne des Hôpitaux de Lyon. Price Fr.8.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, London, S.W.

List of the Fellows, Members, Extra-Licentiates and Licentiates of the Royal College of Physicians of London and of Holders of the Diploma in Public Health granted jointly by the Royal Colleges of Physicians and Surgeons, MCMVII. Price not stated.

TAYLOR AND FRANCIS, Red Lion-court, Fleet-street, London, E.C.

Appendix XX. to the Second Edition of the Descriptive Catalogue of the Pathological Specimens contained in the Museum of the Royal College of Surgeons of England. By Samuel G. Shattock, Pathological Curator of the Museum. Price not stated.

WOOD, WILLIAM, AND COMPANY, New York.

American Practice of Surgery. A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Editors: Joseph D. Bryant, M.D., and Albert H. Buck, M.D., of New York City. Complete in Eight Volumes. Sold only by subscription at $7, $8, or $9 per volume, according to binding.

WRIGHT, JOHN, AND CO., Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

The Medical Annual: A Year Book of Treatment and Practitioner's Index. 1907. Twenty-fifth Year. Price 7s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week such information for gratuitous publication.*

ARGLES, ERNEST E., M.R.C.S., L.R.C.P. Lond., has been appointed Anæsthetist to the Hospital for Sick Children, Great Ormond-street.

COWPER, JOHN, M.B., C.M. Edin., has been re-appointed Medical Officer of Health of Shanklin.

GOODING, MATTHEW RICHARD, L.R.C.P. Lond., M.R.C.S., has been re-appointed Medical Officer of Health for the Barnstaple Port Sanitary Authority.

HAY, K. R., M.B. Camb., M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Physician to the Westminster General Dispensary.

HURLEY, JAMES, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Magor District by the Newport (Mon.) Board of Guardians.

HUSTLER, G. H., M.B., Ch.B. Leeds, has been appointed Medical Officer to Hospital Ship (Royal National Mission to Deep Sea Fishermen).

LINDSAY, D. LAUDER, L.R.C.P. & S. Edin., L.F.P.S. Glasg., L.M., has been appointed Surgeon to the Police at Aldershot, Hants.

RISDON, GEORGE OWEN, L.R.C.P. Lond., M.R.C.S., L.S.A., has been re-appointed Medical Officer for the Second District by the Wells (Somerset) Board of Guardians.

RODGERS, J. W., L.R.C.P. & S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Dorking District of the county of Surrey.

SCOTT, H. M., L.R.C.P. & S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Enniscrone District of the county of Sligo.

STRANGMAN, C. LUCIUS, L.R.C.P. & S. Edin., has been appointed Health Officer, Port Darwin, South Australia, and District Registrar of Births, Deaths, and Marriages for the District of Palmerston.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM, QUEEN'S HOSPITAL.—Obstetric and Ophthalmic House Surgeon, for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BIRMINGHAM WORKHOUSE INFIRMARY.—Assistant Resident Surgical Officer. Salary £104 per annum, with apartments, rations, &c.

BLACKBURN AND EAST LANCASHIRE INFIRMARY.—Senior House Surgeon and Junior House Surgeon. Salary £110 and £70 per annum respectively, with board, washing, &c.

CAMBERWELL PROVIDENT DISPENSARY.—Medical Officer.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—Assistant Surgeon.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £50 per annum, with board and residence.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon for six months. Salary £60 per annum, with rooms, board, washing, and attendance.

CROYDON GENERAL HOSPITAL.—Junior House Surgeon. Salary £50, with board, laundry, and residence.

DERBY BOROUGH ASYLUM.—Assistant Medical Officer. Salary £120 per annum, with board and washing.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 a year, with board, lodging, and laundry.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £25 per annum, with board and washing.

DUNDEE ROYAL INFIRMARY.—Resident Medical Assistant. Salary at rate of £20 per annum. Also Non-Resident Obstetric Assistant. Salary at rate of £40 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Clinical Assistants for three months.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 per annum, with board, lodging, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway.—Senior House Surgeon, Senior House Physician, Two Junior House Surgeons, and One Junior House Physician. Salary of Senior Officers £60 per annum, and of Junior Officers £30 per annum, with board, lodging, and washing.

HUDDERSFIELD INFIRMARY.—Junior House Surgeon. Salary £50 per annum, with board, lodging, and washing.

INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Assistant House Surgeon. Salary £75 per annum, with residence, board, and washing.

LEAMINGTON, WARNEFORD HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and apartments.

LEEDS GENERAL INFIRMARY.—Resident Casualty Officer. Salary £125 per annum, with board, lodging, and washing.

LEEDS PUBLIC DISPENSARY.—Two Junior Resident Medical Officers. Salary £100 per annum, with board and lodging.

LEICESTERSHIRE AND RUTLAND ASYLUM, Leicester.—Second Assistant Officer, unmarried. Salary £130, rising to £160, with apartments, board, and washing.

MANCHESTER WORKHOUSE, Crumpsall.—Assistant Medical Officer, unmarried. Salary £110 per annum, with apartments, fire, light, washing, and attendance.

METROPOLITAN ASYLUMS BOARD.—Third Assistant Medical Officer, unmarried. Salary £150 per annum, rising to £170, with rations, lodging, attendance, and washing.

NORTHAMPTON GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £90 a year, with apartments, board, washing, and attendance.

NOTTINGHAM CHILDREN'S HOSPITAL.—House Surgeon (female) for six months. Salary at rate of £80 per annum, with board, residence, and washing.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Refraction Assistant. Salary £25 a year, with lunch.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Surgeon. Salary £100 per annum, with rooms, board, and washing. Also Junior House Surgeon for six months. Salary at rate of £60 per annum, with rooms, board, and washing.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—Assistant House Surgeon. Salary £82 per annum, with board, residence, and laundry.

STOCKPORT INFIRMARY.—Assistant House and Visiting Surgeon. Salary £80 per annum, with board, washing, and residence.

STOKE-ON-TRENT, INFECTIOUS DISEASES HOSPITAL, Bucknall.—Resident Assistant Medical Officer (female). Salary £100 per annum, with apartments, board, washing, and attendance.

TOTTENHAM HOSPITAL, London, N.—Honorary Medical and Surgical Registrars.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Salary £30, with board and lodging.

WANDSWORTH UNION INFIRMARY, St. John's Hill, Clapham Junction.—Junior Assistant Medical Officer, unmarried, for six months. Salary at rate of £100 a year, with board, lodging, and washing.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House Surgeon, unmarried. Salary £50 per annum, with board, residence, and washing.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Resident House Surgeon. Salary £120 a year, with board and lodging.

YORK, NORTH RIDING LUNATIC ASYLUM, Clifton.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, rising to £200, with rooms, board, attendance, &c.

Births, Marriages, and Deaths.

BIRTHS.

BEATH.—On March 8th, at Barnard House, Bath, the wife of David Leslie Beath, M.R.C.S., of a son.

FLETCHER.—On March 8th, at Harley-street, W., the wife of Herbert Morley Fletcher, M.D., of a daughter.

STUART.—On March 8th, at Dun-darach, Camberley, the wife of W. L. Stuart, M.D., B.S. Lond., of a son.

DEATHS.

FARNCOMBE.—On March 6th, at Fairlea, Chudleigh, S. Devon, Edgar Leonard Farncombe, M.A., M.B., B.Ch. Oxon., M.R.C.S., L.R.C.P., in his 32nd year, of pneumonia.

FISHER.—On March 10th, at Shere, Guildford, Surrey, Charles Fisher, M.D., M.R.C.S.E., L.R.C.P.I., D.P.H. Camb., aged 30 years.

HILL.—On March 3rd, at Chalford Hill, Stroud, Glos., Frederick A. Hill, M.D., aged 63 years.

KING.—On Feb. 18th, at Ludlow, Shropshire, Ernest Edward King, M.R.C.S. Eng., youngest son of the late Simeon John King, of Saffron Walden, Essex.

MACAULEY.—On March 7th, at 17, Nevern-road, South Kensington, William Robert Macauley, M.R.C.P.I., L.R.C.S., L.M., aged 64.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

BILLINGSGATE.

THE Billingsgate and Leadenhall Markets Committee of the Common Council has presented to the Court of Common Council a recommendation to the effect that it be referred to the former to consider the propriety of applying to Parliament to abolish Billingsgate Market and to utilise for the great public fish market of London a site at Shadwell or elsewhere and to report fully upon the subject. This recommendation was carried in spite of some strenuous opposition and of the moving of an amendment asking for further information as to the need for it. Probably few of the general public take a very active interest in the matter, which at the same time affects very considerably Londoners and all those who derive their fish-supply from London looked upon as a distributing centre. The object of the suggested change is to promote a more rapid and easy handling and distribution of the enormous quantities of fish brought to the London market, quantities stated in the Court of Common Council to have been nearly doubled in the course of the last 31 years. The merits of the particular change which ultimately may be made will no doubt be very carefully considered first, but that improvement should be possible, or that change of some kind is required, or, indeed, that it can hardly fail to be beneficial to the community, cannot be doubted by anyone who takes a walk in the immediate vicinity of the present market during business hours and who considers how essential the question of time is when such a perishable article as fish has to be conveyed to the consumer. Perhaps some day in a less-congested market, approached by wider thoroughfares, the language of Shadwell will be typical of the improved circumstances in which it is spoken, and "Billingsgate" as a dialect will be forgotten or become merely a subject of study and speculation for the learned.

A QUESTION OF ETHICS.

To the Editors of THE LANCET.

SIRS,—I notice in your issue of March 9th, p. 701, a letter from a correspondent who, being apparently afraid of his identity being established, signs himself "Enquirer." Being the poor medical officer of health to an urban district referred to I trust you will grant me a few lines to reply. As for my friend the borough medical officer of health, I have no doubt he is well able to look after himself should he deem your correspondent's letter worthy of notice. The facts are as follows. On Thursday evening, Feb. 28th, I was wired to by a firm of solicitors asking me to inspect certain property and appear in court next morning at 11 A.M. to give evidence respecting its condition. I knew nothing further of the affair. I went and inspected the property and found that two of the six houses had considerable repairs done to them, including concrete floors (not asphalte, as your correspondent says) and, in my opinion, they were *then* (and that was the time being dealt with) not some months before, quite fit for human habitation. I said so in my evidence and I maintain so still. I also deny that at the time in question damp was to be seen trickling down the walls of these two houses, as your correspondent avers. Now, Sirs, whilst acknowledging that the Local Government Board inspector had every right to express his own opinion some months before when the houses had not been put in repair, and that the county medical officer and local medical officer had a perfect right to express their opinion in the police court at the time I appeared to give evidence, I claim an equal right to my opinion and also to express such opinion, although your correspondent thinks that no opinion should be given contrary to the opinion of the three aforementioned gentlemen. With regard to his attempt to suggest that my conduct in doing so was a breach of ethics it simply shows his ignorance of ethics and is ludicrous.

In conclusion, I would say that the builder, the councillors, and all the persons interested in the houses are entire strangers to me.

I am, Sirs, yours faithfully,
G. H. PEARCE, D.P.H. Cantab.

Darton Hall, nr. Barnsley, March 8th, 1907.

*** We publish this letter with pleasure.—ED. L.

THE DEATH OF DOWIE.

THE amazing charlatan John Dowie, founder of the "Christian Catholic Church" and of "Zion City," but some time since deposed from his autocracy, has died, and little more need be said about a person whose career, as far as we are aware, contained no incidents worth recording to his credit. Born in 1847, he first became prominent after a chequered and unprosperous early history in 1893, the year of the exhibition at Chicago. During the years that followed he enjoyed extraordinary success and, although he had not been altogether triumphant outside his own country, we feel some satisfaction in believing that he received his first serious check in London. Indeed, there must be an appreciable number of young medical men making their way in the practice of their profession who can remember with a smile of satisfaction somewhat uproarious scenes in which when medical students they questioned the prophet's power to heal disease at the St. Martin's Town Hall. His abuse of our King no doubt added to the contempt with which Dowie was regarded by Britons, but nearer to his own home his greed and his curious financial methods rather than the absurdity of his quackery or of his religious doctrines led to his downfall, although no doubt his followers were disposed latterly to view with mistrust the fact that at the time of his daughter's death he had summoned a medical man to attend her, a failure to support his own claims to which emphasis was lent when he himself became stricken with paralysis. He was an extraordinary product of an age too highly civilised to deal with impostors of his type as criminals. At an earlier date in the history of mankind he would no doubt have been deterred by fear of the stake or the block, or would have brought upon himself a fate which would have saved his fellow men from much pecuniary loss and bodily suffering.

UNDESIRED PUBLICITY.

To the Editors of THE LANCET.

SIRS,—My attention has been drawn to a paragraph in the *People* of last Sunday (10th inst.) in which my name has been mentioned. I need scarcely add that this has been done entirely without my knowledge and much to my regret.

I am, Sirs, yours faithfully,
Upper Wimpole-street, W., March 12th, 1907. W. ERNEST MILES.

THE LAND QUESTION IN THE HIGHLANDS.

Dr. Lachlan Grant, who is well known to our readers by his victory and that of the workmen whose medical attendant he was in the Ballachulish quarries dispute, has forwarded to us a report of an address delivered by himself at Oban on the land question. The address was given under the auspices of the Highland Crofters and Cottars' Association, and its object was to bring about the holding of small plots of land by the peasantry. The matter is too purely a political question for our columns, although, of course, it has its medical side, in that if productive land were more easily to be acquired than it is at present the rush to the towns would be stayed and the ideal backbone of a country—namely, a strong healthy peasantry—would again be in process of production. Dr. Grant believes that in the past the tenants of some small holdings have been able to live in moderate comfort on the products of their land, but, on the other hand, it must be remembered that their homes are often insanitary, witness the Blue-book which was issued in 1906 upon the Sanitary Conditions of the Lews and commented upon in THE LANCET of Sept. 23rd, 1905, p. 904.

THE HISTORY OF MEDICINE.

To the Editors of THE LANCET.

SIRS,—Can you recommend any works dealing with the history of medicine?

I am, Sirs, yours faithfully,
March 5th, 1907. W. B. H.

*** Our correspondent's question being somewhat wide it is difficult to give a definite answer. The best *short* compendium of the history of medicine is a book published some ten years ago and called "A History of Medicine from the Earliest Times," by E. B. Withington. A more lengthy modern work is one in German by Gurlt. Our correspondent might also consult the FitzPatrick Lectures delivered before the Royal College of Physicians of London. The lectures up to the present have been delivered by Dr. J. F. Payne and Dr. Norman Moore and abstracts of the lectures delivered have appeared in THE LANCET of June 27th and July 4th, 1903, Nov. 12th and Nov. 19th, 1904, Nov. 18th and Nov. 25th, 1905, and Nov. 17th and Nov. 24th, 1906. The first set of these lectures has been published by the Clarendon Press as a book and the other lectures will be published in book form in due course. If our correspondent desires to look at any more books on the subject he will find some 40 pages of works in the index catalogue of the library of the Surgeon-General's Office in the United States Army, published at Washington in 1887. The most recent book on the subject which we know of is "Geschichte der Medizin," by Dr. MAX Neuburger, in two volumes, Stuttgart, Ferdinand Enke, 1906.—ED. L.

WANTED—A HOME.

To the Editors of THE LANCET.

SIRS,—Can any of your readers help me in the following case?

A young lady who was a patient of mine some six months ago with consumption and is now in very good health, though not thoroughly sound, seeks employment. She is a refined and charming woman, well educated, and an excellent needlewoman. If any medical man has a young girl with early consumption under his care who needs a companion with a knowledge of open-air treatment I can conscientiously recommend this lady. She would accept a small salary in return for employment of such kind.

I am, Sirs, yours faithfully,
HERAPATH WOOD,
Medical Superintendent of the Liverpool Open-air Sanatorium.
March 6th, 1907.

THE "GLASEPTIC" NEBULISER AND SPRAY.

THE most important feature of both the nebuliser and the spray is that the "atomising" section of the apparatus consists entirely of glass, so that there are no metal fittings to corrode or to oxidise. Moreover, the apparatus is readily cleaned and may, in fact, be kept aseptic.

The "glaseptic" nebuliser is designed for use with solutions having an oil base, but it answers equally well with spirituous, aqueous, or concentrated saline solutions. It may be used for the treatment with spray of both the nasal and respiratory passages. The glaseptic spray gives a very finely divided vapour and for this purpose responds best with aqueous or alcoholic solutions. The apparatus is made in one piece and, like the "nebuliser," can be scientifically cleaned. Messrs. Parke, Davis, and Co. of 111, Queen Victoria-street, London, E.C., supply the "glaseptic" nebulisers and sprays.

Z. Y. X.—We have not the least idea how it has come about that the details of what our correspondent describes as "a remarkable operative cure" have found their way into the lay press. The author must be annoyed at the manner in which uneducated critics are extolling him as a pioneer in surgery and psychology.

Country Practitioner.—The point is left to the discretion of the medical man. Regularly to employ a dispenser as a dentist would be an act of covering, but the performance of a simple extraction in emergencies or under supervision by a dispenser would probably not be regarded by the General Medical Council as an offence.

Necessary.—We cannot guess what a medical man might recommend to our correspondent, whose condition we do not know, nor do we prescribe in these columns. We suggest that "Necessary" should submit his sensible questions to his medical adviser.

C. V. B.—We do not give medical advice to the public. The question is one that can be answered by our correspondent's medical adviser.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (3 P.M.), St. Mark's (2.30 P.M.).

TUESDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (20th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.).

THURSDAY (21st).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.), Tottenham (Gynæcological, 2.30 P.M.).

FRIDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (23rd).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (18th).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8.30 P.M.: Address:—Prof. J. B. Murphy (Chicago).

TUESDAY (19th).—PATHOLOGICAL SOCIETY OF LONDON (Royal Army Medical College, Examination Hall).—5 P.M.: Papers:—Major H. W. Grattan: A Note on Blackwater Fever in Sierra Leone.—Major W. S. Harrison: (1) A Pseudo-diphtheria Bacillus from a Case of Middle Ear Disease; (2) Bacillus Typhosus from Periosteal Abscess One Year after Typhoid.—Lieut.-Colonel W. B. Leishman: (1) Typhoid Inoculation in the Army; (2) Observations on the Spirochætæ of Relapsing Fever and Tick Fever (with demonstration).

WEDNESDAY (20th).—ROYAL MICROSCOPICAL SOCIETY (20, Hanover-square, W.).—8 P.M.: Exhibition of Specimens of British Mycetozoa by Mr. A. B. Hilton. Paper:—Mr. J. Murray: Some South African Tardigrada.

ROYAL METEOROLOGICAL SOCIETY (Institute of Civil Engineers, Great George-street, Westminster, S.W.).—7.30 P.M. Lecture:—Major B. F. S. Baden-Powell: The Exploration of the Air (illustrated by models and lantern slides).

SOCIETY OF ARTS (John-street, Adelphi, W.C.).—8 P.M.: Mr. J. B. C. Kershaw: Smoke Prevention in Factories.

THURSDAY (21st).—NEUROLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos-street, Cavendish-square, W.).—9 P.M.: Clinical Meeting. Patients in attendance at 8 P.M.

FRIDAY (22nd).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M.: Clinical Evening for the Exhibition of Cases followed by Discussion. Patients in attendance from 8 to 9 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (18th).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Lecture:—Prof. C. F. Beadles: The Cerebral Arteries (illustrated by specimens, drawings, and lantern slides).

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. S. E. Dore: Clinique. (Skin.) 5.15 P.M.: Lecture:—Mr. L. Paton: Retro-bulbar Neuritis.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—12 noon: Pathological Demonstration:—Dr. G. C. Low. 2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations. Mr. Dunn: Diseases of the Eye. 5 P.M.: Clinical Lecture:—Mr. Paget.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—Cliniques:—9.30 A.M.: Surgical Out-patient (Mr. H. Evans). 2.30 P.M.: Medical Out-patient (Dr. Whipham), Throat, Nose, and Ear (Mr. Carson); X Ray (Dr. Pirie).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Sir D. Duckworth: Medicine. 3.15 P.M.: Mr. W. Turner: Surgery. 4 P.M.: Dr. StClair Thomson: Diseases of the Throat, Nose, and Ear. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Ear and Throat. 4 P.M.: Special Lecture:—Dr. StClair Thomson: Hoarseness.

TUESDAY (19th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. C. T. Williams: Clinique (Medical.) 5.15 P.M.: Lecture:—Dr. P. Stewart: Traumatic Affections of the Spinal Cord.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Moullin: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. Dr. Ball: Diseases of the Throat, Nose, and Ear. X Rays. 2.30 P.M.: Operations. Dr. Abraham: Diseases of the Skin. 5 P.M.: Clinical Lecture:—Mr. Dunn.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—Cliniques:—10.30 A.M.: Medical Out-patient (Dr. Auld). 2.30 P.M.: Gynæcological Out-patient (Dr. Giles), Surgical Out-patient (Mr. Edmunds). Surgical Operations (Mr. Carson).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. R. T. Hewlett: Medicine. 3.15 P.M.: Mr. Carless: Surgery. 4 P.M.: Mr. M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Skin.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture:—Dr. Collier: Muscular Atrophy in the Upper Extremity.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—3 P.M.: Prof. W. Stirling: The Visual Apparatus of Man and Animals.

WEDNESDAY (20th).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Lecture:—Prof. C. F. Beadles: The Cerebral Arteries (illustrated by specimens, drawings, and lantern slides).

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. J. Cunning: Clinique. (Surgical.) 5.15 P.M.: Lecture:—Mr. J. Poland: The Use and Abuse of Skiagraphy in Fractures and Dislocations.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations. 5 P.M.: Dr. Beddard: Practical Medicine.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—Cliniques:—2.30 P.M.: Skin (Dr. Meachen), Eye (Mr. Brooks), Medical Out-patient (Dr. Whipham).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. F. Taylor: Medicine. 3.30 P.M.: Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 11 A.M.: Eye. 2.30 P.M.: Special Lecture:—Dr. Taylor: Varieties of Spastic Paralysis.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M.: Lecture:—Dr. C. Wall: The Murmurs of Aortic Incompetence.

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—5 P.M.: Demonstration:—Dr. Abercrombie: Nose and Accessory Sinuses.

THURSDAY (21st).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M.: Lecture:—Mr. H. J. Curtis: Liver Abscesses, their Etiology, Symptoms, and Treatment.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations. Mr. Dunn: Diseases of the Eye. 5 P.M.: Lecture:—Mr. Baldwin: Practical Surgery.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—2.30 P.M.: Gynæcological Operations (Dr. Giles). Cliniques:—Medical Out-patient (Dr. Whiting), Surgical Out-patient (Mr. Carson). 3 P.M.: Medical In-patient (Dr. Chappel). 4.30 P.M.: Demonstration:—Dr. G. B. Price: Clinical Examination of the Urine.

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. G. Rankin: Medicine. 3.15 P.M.: Sir W. Bennett: Surgery. 4 P.M.: Dr. H. Cooper: Radiography. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Ear and Throat.

HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M.: Lecture:—Dr. Poynton: Rickets, Achondroplasia and Allied Conditions.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—3 P.M. Dr. C. W. Saleeby: Biology and Progress.

FRIDAY (22nd).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Lecture:—Prof. C. F. Beadles: The Cerebral Arteries (illustrated by specimens, drawings, and lantern slides).

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. H. Tilley: Clinique. (Throat.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Moullin: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. Dr. Ball: Diseases of the Throat, Nose, and Ear. X Rays. 2.30 P.M.: Operations. Dr. Abraham: Diseases of the Skin. 5 P.M.: Lecture:—Mr. Bidwell: Operative Treatment of Duodenal Ulcer.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—9.30 A.M.: Clinique:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M.: Surgical Operations (Mr. Edmunds). Cliniques:—Medical Out-patient (Dr. Auld), Eye (Mr. Brooks). 3 P.M.: Medical In-patient (Dr. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. R. Bradford: Medicine. 3.15 P.M.: Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Skin. 2.15 P.M.: Special Lecture:—Dr. R. Bradford: Chronic Bright's Disease.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture:—Dr. Collier: Torticollis and the Tics.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—9 P.M. Prof. J. J. Thomson: Rays of Positive Electricity.

SATURDAY (23rd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations.

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich.)—2.30 P.M.: Operations. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 11 A.M.: Eye.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—3 P.M. Prof. J. J. Thomson: Röntgen, Cathode, and Positive Rays.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1906, which was completed with the issue of Dec. 29th, were given in THE LANCET of Jan. 5th, 1907.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1906 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 14th, 1907.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 8	30·050	W.	0·04	84	49	41	42	44	Fine
,, 9	30·258	N.W.	0·01	75	45	40	37	41	Cloudy
,, 10	30·000	W.	0·10	97	56	41	43	45	Cloudy
,, 11	30·154	E.	0·04	63	41	37	37	38	Raining
,, 12	30·486	S.W.		76	47	30	...	32	Foggy
,, 13	30·014	W.	0·21	91	51	32	42	44	Fine
,, 14	29·930	N.W.	0·04	89	46	38	37	39	Fine

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